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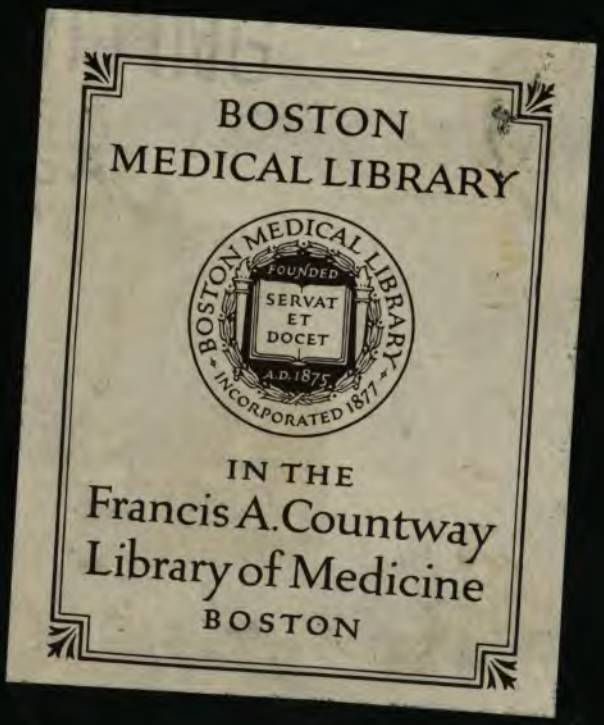
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THE TRANSACTIONS

OF THE

EDINBURGH OBSTETRICAL SOCIETY.

THE TRANSACTIONS

OF THE

EDINBURGH OBSTETRICAL SOCIETY.

VOL. XIX.

SESSION 1893-94.

EDINBURGH: OLIVER AND BOYD,
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1894.

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PREFACE.

THIS, the nineteenth volume of the Society's Transactions, contains a record of its proceedings during the Session 1893–94.

In it, as in former volumes, the views brought forward in the papers are to be considered as those of the writers themselves, and not as those of the Society as a body.

October 1894.

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Dr John Burn,	1868–69	Dr D. Berry Hart,	1890–91
Dr Charles Bell,	1870–71	Professor A. R. Simpson,	1892–93
Dr L. R. Thomson,	1872–73	Dr A. H. Freeland Barbour,	1894
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Dr R. B. Malcolm,	1843	Dr Angus Macdonald,	1874–75
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Dr Beilby,	1848	Dr Angus Macdonald,	1878–79
Dr T. Graham Weir,	1848	Professor A. R. Simpson,	1880–81
Dr R. B. Malcolm,	1849–53	Dr Robert Bruce,	1880–81
Dr John Moir,	1849–53	Dr James Carmichael,	1882–83
Dr T. Graham Weir,	1854–55	Dr J. Halliday Croom,	1882–83
Dr John Moir,	1854–55	Dr Angus Macdonald,	1884
Dr W. Cumming,	1856–57	Dr Charles E. Underhill,	1884–85
Dr A. Thomson,	1856–57	Dr William Ziegler,	1885
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Dr David Wilson,	1858–59	Dr Leith Napier,	1886
Dr T. Graham Weir,	1860–61	Dr D. Berry Hart,	1887–88
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Dr Alex. Keiller,	1862–63	Professor A. R. Simpson,	1890
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Dr John Burn,	1866–67	Dr Freeland Barbour,	1892–93
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Dr William Bryce,	1868–69	Dr James Ritchie,	1894

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Dr Ransford,	1840 to 1842	Dr J. A. Sidey,	1859 to 1867
Dr G. Paterson,	1842 to 1847	Dr James Young,	1867 to 1875
Dr Cumming,	1847 to 1854	Dr William Craig,	1875
Dr Keiller,	1854 to 1859		

* Previous to 1861 the office of Treasurer was conjoined with that of Senior Secretary.

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Dr G. Paterson, . .	1840 to 1847	Dr James Andrew, .	1871 to 1875
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Dr Cumming, . .	1847 to 1854	Dr C. E. Underhill, .	1875 to 1879
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Dr J. M. Duncan, .	1849 to 1852	Dr D. Berry Hart, .	1879 to 1883
Dr Keiller, . . .	1852 to 1859	Dr A. H. Freeland Barbour,	1881 to 1886
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Dr Peter Young, .	1861 to 1863	Dr J. W. Ballantyne, .	1889
Dr W. Stephenson, .	1863 to 1867	Dr F. W. N. Haultain,	1893
Dr R. Peel Ritchie, .	1865 to 1873		

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Dr C. E. Underhill, .	1879 to 1883	Dr R. Milne Murray, .	1889

LIST OF FELLOWS OF THE SOCIETY.

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1890 Apostoli, Dr, 5 Rue Molière, Paris.

1882 Barnes, Dr Robert, Lingwood, Liss, Hants.

1882 Battey, Dr R., 36 Broad Street, Rome, Georgia.

1886 Bozeman, Dr Nathan, 296 Fifth Avenue, New York.

1891 Budin, Prof., Avenue Hoche 4, Paris.

1886 Chiara, Professor Domenico, Florence.

1882 Emmet, Dr, 93 Madison Avenue, New York.

1882 Freund, Professor, Kaiser Wilhelm's University, Strassburg.

1882 Goodell, Professor, 1418 Spruce St., Philadelphia.

1891 Gusserow, Prof., Charité, Berlin.

1891 Halbertsma, Professor, Utrecht.

1882 Hegar, Professor, Albert Ludwig's University, Freiburg.

1882 Hicks, Dr J. Braxton, 34 George St., Hanover Square, London, W.

1886 Keith, Dr Thomas, LL.D., 42 Charles Street, Berkeley Square, London, W.

1892 Kidd, Dr George H., 58 Merrion Square, Dublin.

1892 Koeberlé, Dr Eugene, Strassburg.

1890 Lusk, Dr W. T., 47 E. Thirty-fourth Street, New York.

1893 Moir, Dr John, 52 Castle Street.

1892 Müller, Professor Peter, Berne, Switzerland.

1851 Oldham, Dr Henry, 4 Cavendish Place, London, W.

1889 Olshausen, Professor, Frauenklinik, Artillerie Strasse 13, Berlin.

1882 Pajot, Professor, Paris.

1882 Parvin, Professor, 1626 Spruce St., Philadelphia.

1892 Playfair, Professor Wm. S., LL.D., 31 George Street, Hanover Sq., London, W.

1882 Porro, Professor, Milan.

1894 Priestley, Sir William O., M.D., LL.D., 17 Hertford Street, Mayfair, London, W.

1882 Schultze, Professor B. S., University, Jena.

1892 Slavjansky, Professor R. J., Rue Liteinaia 24, St Petersburg.

1882 Spaeth, Professor, Vienna.

1882 Stadtfeldt, Professor, Copenhagen.

1864 Stolz, Professor, Nancy.

1890 Tait, Professor Lawson, LL.D., 7 The Crescent, Birmingham.

1882 Tarnier, Prof., Rue Duphot, Paris.

1882 Thomas, Professor T. G., 600 Madison Avenue, New York.

1882 Tibone, Professor, Turin.
1876 Turner, Professor Sir W., LL.D., 6 Eton Terrace, Edinburgh.
1887 Wells, Sir Spencer, M.D., 3 Upper Grosvenor Street, London, W.
1864 West, Dr Charles, 4 Evelyn Mansions, Carlisle Place, Victoria Street, London, S.W.
1891 Wilson, Dr H. P. C., 146 Park Avenue, Baltimore, U.S.A.
1882 Winckel, Prof. von, Ludwig-Maximilian's University, Munich.

CORRESPONDING FELLOWS.

1868 Aitchison, Dr James E. T., LL.D., Edinburgh.
1884 Arnott, Brig. Surg.-Lieut.-Col. Jas., Professor of Midwifery, Bombay.

1863 Belgrave, Dr, Sydney.
1888 Bentley, Dr Arthur J., Cairo.
1880 Bosch, Dr Van Den, Liége.
1873 Boyd, Dr John, Slamannan.
1880 Brock, Dr W. J., Midlothian.
1863 Brown, Dr R. C., Preston.
1889 Brown, Surgeon-Lt.-Col. D. Blair, A.M.D.

1859 Cayzer, Mr Thomas, Liverpool.
1858 Coghill, Dr J. G. S., Ventnor.
1894 Curatulo, Prof. G. E., Rome.

1869 Davies, Mr Thos., Whittlesea.
1873 Donovan, Mr W., Birmingham.

1877 Engelmann, Dr G., Kreuznach.

1859 Figg, Mr E. G., Edinburgh.
1864 Finlay, Dr R. B., Q.C., Lond.

1868 Grenser, Dr Paul W. T., Dresden.
1864 Grévé, Dr, Norway.
1875 Groesbeck, Dr Hermann J., New York.

1853 Hall, Dr D., Montreal.
1848 Hartmann, Dr, St Petersburg.
1870 Haynes, Dr Stanley, Malvern.
1880 Helme, Dr J. M., Rusholme.
1885 Helme, Dr T. A., Manchester.
1865 Henderson, Dr E., China.
1849 Higgins, Dr Chas. H., Birkenhead.
1866 Hubbard, Prof., Connecticut.
1887 Hume, Dr T., Surgeon-Major, India.
1882 Husband, Dr H. Aubrey, Manitoba.

1894 Jennings, Dr David D., New York.
1871 Johnston, Dr A. C., R.N., Edinburgh.
1882 Johnston, Surgeon-Major Wilson, India.

1845 Keith, Dr George S., Currie.
1867 Kingston, Dr, Montreal.
1874 Kleinwächter, Prof. L., Grätz.
1865 Krassowski, Prof., St Petersburg.

1871 Lambert, Dr, Paris.
1849 Lawrence, Dr Samuel, Montrose.
1887 Limont, Dr J., Newcastle-on-Tyne.
1883 Lindsay, Dr D., Pittinain.
1867 Lord, Dr Richard, London.

1879 Machattie, Dr Thomas A., Australia.
1859 Macdonald, Dr F. R., Inveraray.
1878 Macdougall, Dr John A., Cannes.
1862 Mackay, Dr M. A., Canada.
1870 M'Kendrick, Prof., Glasgow.
1869 M'Millan, Dr T. L., Australia.
1871 Madden, Dr T. More, Dublin.
1864 Main, Dr William, Heswall.
1879 Marshall, Dr Thomas, London.
1866 Martin, Dr Karl, Berlin.
1860 Martine, Dr William, Haddington.
1882 Maslovsky, Dr, St Petersburg.
1860 Milburn, Dr George, Hayle.
1883 Mills, Dr B. Langley, India.
1861 Mitchell, Sir Arthur, LL.D., Edinburgh.
1877 Moolman, Dr Henry, South Africa.
1869 Mossop, Mr Isaac, Bradford.
1878 Mundé, Dr Paul F., New York.
1862 Murray, Dr David, London.
1859 Myrtle, Dr A. S., Harrogate.

1884 Neve, Dr E. F., Kashmir.
1849 Norris, Mr H., Petherton.

1857 Parker, Dr, Nova Scotia.
1869 Paton, Dr J. W., Rockferry.

1880 Reid, Dr James More, Aldershot.
1863 Ropes, Dr, Boston, U.S.A.

1878 Serdukoff, Dr A., St Petersburg.
1856 Skinner, Dr T., London.
1861 Stephenson, Prof. W., Aberdeen.
1888 Stevenson, Mr E. Sinclair, Cape of Good Hope.
1854 Storer, Dr H., Boston, U.S.A.
1875 Sutugin, Dr V., St Petersburg.

1867 Thomson, Mr W., Wrenbury.
1880 Turner, Dr William, Gibraltar.

1861 Veale, Dr H. R. L., London.

1872 Wallace, Professor John, Liverpool.
1840 White, Dr F. I., Perth.
1864 Whiteford, Dr James, Greenock.
1886 Whitton, Dr A. B., Aberchirder.
1845 Wilson, Dr David, Edinburgh.
1865 Wollowicz, Dr C., St Petersburg.

ORDINARY FELLOWS.

Note.—Those marked with an asterisk have been Members of Council. Members of Council continue in office two years.

		Date of Admission.
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	George William Balfour, M.D., LL.D., F.R.C.P. Ed., 17 Walker Street,	1847
	*Thomas Alexander Goldie Balfour, M.D., F.R.C.P. Ed., 51 George Square,	1855
	John Henderson, M.D., F.R.C.S. Ed., 7 John's Place, Leith,	1857
5	William Husband, M.D., F.R.C.S. Ed., 4 Royal Circus,	1857
	******Professor Alexander Russell Simpson, M.D., F.R.C.P. Ed., 52 Queen Street,	1858
	*Peter Young, M.D., F.R.C.P. Ed., 43 Heriot Row,	1859
	*Robert Peel Ritchie, M.D., F.R.C.P. Ed., 1 Melville Crescent,	1861
	*James Cappie, M.D., 37 Lauriston Place,	1862
10	James Watt Black, M.D., F.R.C.P. Lond., 15 Clarges Street, Piccadilly, London, W.,	1863
	John Linton, M.D., F.R.C.P. Ed., 60 George Square,	1863
	Walter Watson, M.D., 54 Mayfield Road,	1865
	James Jamieson, M.D., F.R.C.S. Ed., 43 George Square,	1866
	Thomas John Fordyce Messer, M.D., F.F.P. & S. Glasg., Helensburgh,	1866
15	Stewart Stirling, M.D., F.R.C.S. Ed., 4 Coates Crescent,	1866
	George Rosa, M.D., L.R.C.S. Ed., 12 Gayfield Square,	1867
	John Charles Ogilvie Will, M.D., C.M., 379 Union Street, Aberdeen,	1867
	William Spalding, M.D., M.R.C.S. Eng., Gorebridge,	1867
	George Dickson, M.D., F.R.C.S. Ed., 9 India Street,	1867
20	*James Andrew, M.D., F.R.C.P. Ed., 2 Atholl Crescent,	1868
	*William Taylor, M.D., F.R.C.P. Ed., 12 Melville Street,	1868
	James Ormiston Affleck, M.D., F.R.C.P. Ed., 38 Heriot Row,	1869
	*Andrew M. Thomson Rattray, M.D., Portobello,	1869
	**John Connel, M.D., F.R.C.P. Ed., Peebles,	1869
25	William Craig, M.D., F.R.C.S. Ed., 71 Bruntsfield Place,	1870
	Thomas Hardie, M.D., F.R.C.P. Ed., 10 John's Place, Leith,	1870
	**John Halliday Croom, M.D., F.R.C.P. Ed., 25 Charlotte Sq.,	1870
	*Alexander Ballantyne, M.D., F.R.C.P. Ed., Dalkeith,	1870
	William Borwick Robertson, M.D., L.R.C.S. Ed., St Anne's, Thurlow Park Road, West Dulwich, London, S.E.,	1870
30	David Smith, L.R.C.P. & S. Ed., Johnshaven, Montrose,	1870
	Robert Lucas, M.D., F.R.C.P. Ed., Dalkeith,	1871
	**James Carmichael, M.D., F.R.C.P. Ed., 22 Northumberland Street,	1871
	William Johnston, M.D., Stirling,	1871
	**Peter Alexander Young, M.D., F.R.C.P. Ed., 25 Manor Place,	1871
35	**Charles Edward Underhill, M.B., F.R.C.P. Ed., F.R.C.S. Ed., 8 Coates Crescent,	1872
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	***John Playfair, M.D., F.R.C.P. Ed., 5 Melville Crescent,	1873
	Surg.-Maj. James M'Adam Hyslop, M.D., 22 Palmerston Pl.,	1874
	**Henry Macdonald Church, M.D., F.R.C.P. Ed., 36 George Sq.,	1875
40	James Lindsay Howison Herbert Porteous, M.D., F.R.C.S. Ed., M.R.C.P. Ed., Yonkers, New York,	1875
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	Joshua John Cox, M.D., F.R.C.S. Ed., Eccles, Manchester,	1876
	James Dunsmure, M.D., F.R.C.S. Ed., 53 Queen Street,	1876
45	*Thomas Rutherford Ronaldson, M.B., F.R.C.P. Ed., 3 Bruntsfield Terrace,	1876
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	John Brown Buist, M.D., F.R.C.P. Ed., 1 Clifton Terrace,	1877

		Date of Admission.
	Frederick le Maitre Grassett, M.B., F.R.C.S. Ed., Toronto,	1877
	George Herbert Bentley, L.R.C.P. & S. Ed., Kirkliston,	1877
50	Andrew Douglas Ramsay Thomson, F.R.C.P. Ed., Musselburgh,	1877
	James Stitt Thomson, F.R.C.P. Ed., Dalkeith,	1877
	John Archibald, M.D., F.R.C.S. Ed., 2 The Avenue, Beckenham, Kent,	1877
	***David Berry Hart, M.D., F.R.C.P. Ed., 29 Charlotte Square,	1877
	James Murphy, M.D., M.Ch., Holly House, Sunderland,	1877
55	Andrew Balfour, M.D., C.M., Portobello,	1877
	David Menzies, M.B., F.R.C.S. Ed., 20 Rutland Square,	1877
	**James Foulis, M.D., F.R.C.P. Ed., 34 Heriot Row,	1878
	Donald Roderick Morrison Murray, M.B., C.M., 41 Albany Street, Leith,	1878
	Robert Spence, M.B., C.M., Burntisland,	1878
60	George Mackay, M.B., F.R.C.S. Ed., Lochrin House,	1878
	James Henry Croudace, L.R.C.P. & S. Ed., Stafford,	1878
	Robert Bell, M.D., F.F.P. & S. Glasg., 29 Lynedoch Street, Glasgow,	1878
	Alexander Disney Leith Napier, M.D., M.R.C.P.L., 67 Grosvenor Street, Grosvenor Square, London, W.,	1878
	John M'Watt, M.B., C.M., Morelands, Duns,	1879
65	William Nicol Elder, L.R.C.P. & S. Ed., 6 Torphichen Street,	1879
	Richard Freeland, M.D., C.M., Broxburn,	1879
	Henry Hay, M.B., C.M., 7 Brandon Street,	1879
	Abraham Wallace, M.D., F.F.P. & S. Glasg., 64 Harley Street, London, W.,	1879
	John Rogerson Hamilton, M.D., C.M., Hawick,	1879
70	Arthur Oakes, M.D., C.M., Portarlington Road, Bournemouth,	1879
	L. Lindsay Rowland, M.D., Salem, Oregon, U.S.A.,	1879
	George Rothwell Adam, M.B., C.M., Carlton House, East Melbourne,	1879
	Hamilton Wylie, M.B., C.M., 1 George Place,	1879
	**Alexander Hugh Freeland Barbour, M.D., F.R.C.P. Ed., 4 Charlotte Square,	1879
75	James Murray, M.B., C.M., 1 Brandon Street,	1879
	*Thomas Duddingston Wilson, M.B., F.R.C.S. Ed., 10 Newington Road,	1879
	Andrew James Duncan, M.D., L.R.C.S. Ed., 158 Nethergate, Dundee,	1879
	John Glaister, M.D., F.F.P. & S. Glasg., 4 Grafton Pl., Glasgow,	1879
	T. Edgar Underhill, M.D., F.R.C.S. Ed., Dunedin, Barnt Green,	1879
80	William Swanstone Spence Reid, M.B., C.M., Oakley, Kirkcudbright,	1880
	Robert Milne Murray, M.B., F.R.C.P. Ed., 10 Hope Street,	1880
	**William Loudon Reid, M.D., F.F.P. & S. Glasg., 7 Royal Crescent, Glasgow, W.,	1880
	*James Ritchie, M.D., F.R.C.S. Ed., F.R.C.P. Ed., 22 Charlotte Square,	1880
	William Alexander Finlay, M.D., F.R.C.S. Ed., St Helen's, Russell Place, Trinity,	1880
85	John Joynor Fraser, F.R.C.S. Ed., Hessle, East Yorks,	1880
	James More, M.D., M.R.C.S. Eng., Rothwell, Kettering,	1880
	Thomas Rennie Scott, M.D., C.M., Musselburgh,	1880
	William Badger, M.B., C.M., Penicuik,	1880
	Russell Elliot Wood, M.B., F.R.C.S. Ed., 9 Darnaway Street,	1880
90	Robert Somerville, M.D., F.R.C.S. Ed., Galashiels,	1881
	*George Hunter, M.D., F.R.C.S. Ed., F.R.C.P. Ed., 33 Palmerston Place,	1881
	George Hurst, M.B., C.M., 96 Pitt Street, Sydney, N.S.W.,	1881
	John E. Ranking, M.D., F.R.C.P.L., M.R.C.S. Eng., Tunbridge Wells,	1881

		Date of Admission.
	*Arthur Douglas Webster, M.D., F.R.C.P. Ed., Belleville Lodge, S. Blacket Place,	1881
95	Alexander Black, M.B., F.R.C.P. Ed., 13 Howe Street,	1881
	John Robertson, M.B., C.M., 30 Lauriston Place,	1881
	William Haig Brodie, M.D., C.M., 88 Oxford Terrace, Hyde Park, London, W.,	1881
	James Hewitson, M.B., C.M., Holmfield, Reigate,	1881
	Samuel Macvie, M.B., C.M., Chirnside,	1881
100	James Thomson, M.D., C.M., St Heliers, Jersey,	1881
	John Waugh, M.D., C.M., 36 Finsbury Pavement, London, E.C.,	1881
	Hugh Logan Calder, M.D., F.F.P. & S. Glasg., 60 Leith Walk,	1882
	Henry Anderson Peddie, M.B., C.M., 24 Palmerston Place,	1882
	James Simpson, M.D., F.R.C.S. Ed., Portobello,	1882
105	Thomas Fisher Gilmour, L.R.C.P. Ed., L.F.P. & S. Glasg., Port Ellen, Islay,	1882
	Andrew Stark Currie, M.D., M.R.C.S. Eng., 81 Queen's Road, Finsbury Park, London, N.,	1882
	William Black Alexander, L.F.P. & S. Glasg., 8 Blenheim Pl.,	1882
	Harry George Deverell, M.D., C.M., 12 Windsor Street,	1882
	George Keppie Paterson, M.B., M.R.C.P. Ed., 17 Forth St.,	1882
110	Herbert R Rendell, M.B., C.M., St John's, Newfoundland,	1882
	David Smart, M.B., C.M., 74 Hartington Road, Sefton Park, Liverpool,	1882
	F. W. Dyce Fraser, M.D., F.R.C.P. Ed., Gorton House, Lasswade,	1883
	Robert John Collie, M.D., C.M., St George's Lodge, Catford, London, S.E.,	1883
	David Wm. Leone Ritchie, M.B., C.M., 22 E. Claremont St.,	1883
115	*Nathaniel Thomas Brewis, M.B., F.R.C.P. Ed., 23 Rutland St.,	1883
	Thomas Wyld Pairman, L.R.C.P. & S. Ed., H.M. Prison, Lyttelton, New Zealand,	1883
	John Wm. Ballantyne, M.D., F.R.C.P. Ed., 24 Melville St.,	1883
	Thomas Proudfoot, M.B., F.R.C.P. Ed., 13 Lauriston Place,	1884
	James Craig Balfour, L.R.C.P. & S. Ed., Belford, Northumberland,	1884
120	John William Dunbar Hooper, L.R.C.P. & S. Ed., Melbourne, Australia,	1884
	W. Fraser Macdonald, M.B., C.M., Auchtermuchty,	1884
	William Spence, M.B., C.M., Dollar,	1884
	Alexander Thom, M.D., C.M., Crieff,	1884
	George Hugh Mackay, M.B., C.M., Elgin,	1884
125	Wm. Wright Millard, M.B., C.M., 3 George Place,	1884
	John Mowat, M.D., C.M., 1 Hope Park Terrace,	1884
	William John Beattie, L.R.C.P. Ed., L.F.P. & S. Glasg., Stockton-on-Tees,	1884
	James Lumsden Bell, M.B., C.M., Driffield, Yorkshire,	1884
	Thomas Brown Darling, M.D., C.M., 13 Merchiston Place,	1884
130	Harry Melville Dunlop, M.D., F.R.C.P. Ed., 20 Abercromby Pl.,	1884
	*Robert William Felkin, M.D., 8 Alva Street,	1884
	James K. King, M.D., Watkins, New York,	1884
	William Marshall, L.R.C.S. Ed., Milnathort,	1884
	Wm. Richardson, M.D., F.R.C.S. Ed., Bath Lodge, Reading,	1884
135	Fourness Barrington, M.B., C.M., 18 Birchin Lane, London, E.C.,	1884
	*Francis Wm. Nicol Haultain, M.D., F.R.C.P. Ed., 17 Rutland St.,	1884
	John Struthers Stewart, L.R.C.P. & S. Ed., 15 Merchiston Pl.,	1884
	W. G. Anglin, M.D., C.M., Kingston, Ontario,	1885
	Alexander Campbell, M.D., F.R.C.S. Ed., 1 Clarendon Terrace, Dundee,	1885
140	Charles Batten Gracie, L.R.C.P. Ed., M.R.C.S. Eng., Linksview, Burntisland,	1885
	Frederick Anastasius Saunders, F.R.C.S. Ed., L.R.C.P. Ed., Grahamstown, South Africa,	1885

		Date of Admission.
	John Smith, M.D., M.R.C.S. Eng., Brycehall, Kirkcaldy,	1885
	Allan Cuthbertson Sym, M.D., C.M., 144 Morningside Road,	1885
	Frederick J. Underhill, F.R.C.S. Ed., L.R.C.P. Ed., Mission City, British Columbia,	1885
145	William Gayton, M.D., M.R.C.P.L., M.R.C.S. Eng., Bartram Lodge, Fleet Road, Hampstead, London, N.W.,	1885
	*Alexander Matthew, F.R.C.S. Ed., Corstorphine,	1885
	Thomas Cargill Nesham, M.D., M.R.C.S. Eng., 12 Ellison Place, Newcastle-on-Tyne,	1885
	Brodie Cruickshank, M.D., C.M., Nairn,	1885
	Alexander Somerville Cumming, M.D., F.R.C.P. Ed., 18 Ainslie Place,	1885
150	Kenneth N. Fenwick, M.D., Kingston, Canada,	1885
	Gustave Michael, M.B., C.M., 188 Commercial Road, London, E.,	1885
	James Mills, M.D., Janesville, Wisconsin, U.S.A.,	1885
	Selwyn Hale Puckle, M.B., C.M., Bishop's Castle, Shropshire,	1885
	*James Haig Ferguson, M.D., F.R.C.P. Ed., M.R.C.S. Eng., 25 Rutland Street,	1885
155	John Edward Gemmell, M.B., C.M., 12 Rodney St., Liverpool,	1885
	Robert Stewart, M.B., C.M., 42 George Square,	1885
	Surgeon-Captain Robert Charles Macwatt, M.B., C.M., 15th Bengal Cavalry, Bombay,	1885
	*E. H. Lawrence Oliphant, M.D., C.M., 18 Burnbank Terrace, Glasgow,	1885
	Andrew Wallace Walker, L.R.C.P. Ed., L.F.P. & S. Glasg., 24 Forth Street,	1886
160	James Hogarth Pringle, M.B., F.R.C.S. Eng., 256 Bath Street, Glasgow,	1886
	Walter Blake Nisbet, M.B., C.M., Townsville, N. Queensland, Australia,	1886
	Hugo Macaulay Hardcastle, M.D., C.M., Archbold Lodge, Newcastle-on-Tyne,	1886
	Robert Swan Aitchison, M.B., F.R.C.P. Ed., 74 Great King Street,	1886
	Alfred Aikman, M.B., C.M., Beverley Road, Hull,	1886
165	John Walton Hamp, L.F.P. & S. Glasg., L.S.A., Penn Road, Wolverhampton,	1886
	John Dickinson Leigh, M.B., C.M., Brotton, Yorkshire,	1886
	James Auriol Armitage, M.D., C.M., 28 Waterloo Road, Wolverhampton,	1886
	William Henry Miller, M.D., F.R.C.P. Ed., 6 West Circus Pl.,	1886
	John M'Call, L.R.C.P. Ed., 4 Leopold Place,	1886
170	Thomas Wood, M.B., C.M., 55 Ferry Road,	1886
	F. E. Drumheller, M.D., Sunbury, Pennsylvania,	1887
	F. W. D'Evelyn, M.B., C.M., 219 Geary Street, San Francisco,	1887
	Alexander Forbes, M.B., C.M., Liberton,	1887
	Charles Wicks, L.R.C.P. & S. Ed., South View, Fortune Green, West Hampstead, London, N.W.,	1887
175	Hugh M'Callum, L.R.C.P. & S. Ed., Pitlochry,	1887
	Nutting Stuart Fraser, M.B., M.R.C.S. Eng., St John's, Newfoundland,	1887
	George Franklin Shiels, M.D., F.R.C.S. Ed., 229 Geary Street, San Francisco,	1887
	Alexander MacLachlan, M.B., C.M., Beauly,	1887
	Augustus Alexander Matheson, M.D., F.R.C.P. Ed., 41 George Square,	1887
180	Robert Mackenzie, M.D., C.M., Napier Villa, Merchiston,	1887
	Simon Linton, M.B., C.M., Grangemouth,	1887
	Henry Spelman Baumgartner, M.B., M.R.C.S. Eng., Saville Place, Newcastle-on-Tyne,	1887
	Thomas Jackson Thyne, M.B., F.R.C.P. Ed., 2 Dean Terrace,	1887
	W. Burns Macdonald, M.B., C.M., Dunbar,	1887

		Date of Admission.
185	Charles William J. Chepmell, M.D., L.R.C.P. & S. Ed., 87 Buckingham Road, Brighton,	1887
	John St Clair Boyd, M.D., M.Ch., 27 Victoria Place, Belfast,	1887
	Briton Smallman Robson, M.B., C.M., 66 Brighton Grove, Newcastle-on-Tyne,	1887
	Ernest T. Roberton, M.D., M.R.C.S. Eng., Auckland, New Zealand,	1887
	*Samuel Sloan, M.D., F.F.P. & S. Glasg., 5 Somerset Pl., Glasgow,	1887
190	James Wm. Fox, L.R.C.P. & S. Ed., 68 Lupus Street, Pimlico, London, S.W.,	1887
	John Fred. Sturrock, M.B., C.M., Hornewood, Broughty-Ferry,	1887
	Alexander Primrose, M.B., M.R.C.S. Eng., Toronto, Canada,	1887
	Arthur Perigal, M.D., M.R.C.S. Eng., New Barnet, Herts,	1887
	James Aitken Clark, M.B., C.M., 4 Cambridge Street,	1887
195	Edward Carmichael, M.D., M.R.C.P. Ed., 21 Abercromby Pl.,	1887
	Percival Humble Watson, M.R.C.S. Eng., L.R.C.P. Ed., 72 Jesmond Road, Newcastle-on-Tyne,	1887
	Charles Clark Teacher, M.B., C.M., 16 Newington Road,	1887
	Robert Inch, M.B., C.M., Gorebridge,	1887
	Ellis Thomas Davies, M.D., M.R.C.S. Eng., 97 Shaw Street, Liverpool,	1887
200	Henry Alexis Thomson, M.D., F.R.C.S. Ed., 2 Coates Crescent,	1887
	John Orr, M.B., C.M., Innerleithen,	1887
	George Owen Carr Mackness, M.D., C.M., Fort Street House, Broughty-Ferry,	1887
	Francis Joseph Baildon, M.B., C.M., 57 Hoghton Street, Southport,	1887
	Surgeon-Lt. Ralph H. Maddox, M.B., M.R.C.S. Eng., I.M.S., Bombay,	1887
205	James Williamson Martin, M.D., F.R.C.P. Ed., 23 Chesterton Road, London, W.,	1887
	James Andrew Blair, M.B., C.M., D.Sc., Straiton Manse, Maybole,	1887
	John Robert Henry Dubourg, L.R.C.P. & S. Ed., 120 Islington, Liverpool,	1887
	*John Thomson, M.D., F.R.C.P. Ed., 14 Coates Crescent,	1887
	Tennent Ronalds, L.R.C.P. & S. Ed., Killochan Castle, Girvan,	1887
210	William M'Creadie, M.B., M.R.C.P. Ed., 164 Ferry Road,	1887
	Robert Kirk, M.D., F.R.C.S. Ed., Bathgate,	1887
	William Fraser Wright, M.B., C.M., Bonnington Mount, Bonnington Terrace,	1887
	Alexander Bruce, M.D., F.R.C.P. Ed., 13 Alva Street,	1887
	Richard Joseph Trestan, L.R.C.P. & S. Ed., Retford, Notts,	1887
215	Robert Henry Blaikie, M.D., F.R.C.S. Ed., 42 Minto Street,	1888
	James Hutcheson, M.D., F.R.C.S. Ed., 44 Moray Place,	1888
	Farquhar W. Matheson, M.B., C.M.,	1888
	Jervis Pareira, M.D., Delegado da Saude, Mozambique,	1888
	Christopher Martin, M.B., F.R.C.S. Eng., 35 George Road, Edgbaston, Birmingham,	1888
220	John George Havelock, M.D., C.M., Sunnyside, Montrose,	1888
	John Pirie, M.B., C.M., 10 Ardmillan Terrace,	1888
	John Gibson Graham, M.B., C.M., 5 Ashgrove Terrace, Partickhill, Glasgow,	1888
	William Augustus Gibson, L.R.C.P. & S. Ed., 3 Overstrand Mansions, Battersea Park, London, S.W.,	1888
	Robert Adams Brewis, M.D., C.M., Waratah, Tasmania,	1888
225	John Allison, M.B., C.M., Kettering, Northampton,	1888
	Surgeon-Captain Charles H. Bedford, M.D., M.R.C.S. Eng., Bengal Army, Bombay,	1888
	Archibald Cowan Guthrie, M.B., C.M., 134 Newhaven Road,	1888
	John Cunninghame, M.B., C.M., Port Chalmers, New Zealand,	1888
	Samuel Beattie, M.B., C.M., Pitlochry,	1888

		Date of Admission.
230	Professor James Chalmers Cameron, M.D., 941 Dorchester St., Montreal,	1888
	Archibald Home Douglas, M.B., F.R.C.P. Ed., 4 Palmerston Place,	1888
	Albert Edward Morison, M.B., F.R.C.S. Ed., M.R.C.S. Eng., Brougham Terrace, Hartlepool,	1888
	George H. Temple, M.B., C.M., Eccles, Manchester,	1888
	Norman L. Boxill, M.B., C.M., Buttalls, St George, Barbados,	1888
235	Khumar B. Narayan, L.R.C.P. & S. Ed., Cooch, Behar, India,	1888
	John Hunter Helm, M.B., C.M., Ratho,	1888
	William Lundie, M.D., C.M., 3 Glengyle Terrace,	1888
	Joseph Thom Tennant, M.B., C.M., Bathgate,	1888
	George Scott MacGregor, M.B., C.M., 2 Burnbank Terrace, Glasgow,	1888
240	William Sneddon, M.B., C.M., Cupar-Fife,	1888
	Thomas Watts Eden, M.B., C.M., 21 Bentinck Street, Cavendish Square, London, W.,	1888
	William Fordyce, M.D., C.M., 6 Clifton Terrace,	1888
	Andrew Fleming Wood, M.B., L.R.C.S. Ed., City Fever Hospital,	1889
	Charles E. Harvey, M.B., M.R.C.S. Eng., Sav-la-Mar, Jamaica,	1889
245	Alex. Lang Murray, L.R.C.P. & S. Ed., 18 Duddingston Park,	1889
	George Pirrie Boddie, M.B., C.M., 147 Bruntsfield Place,	1889
	James F. W. Ross, M.D., Toronto, Canada,	1889
	J. Stuart Nairne, F.R.C.S. Ed., F.F.P. & S. Glasg., 197 Pitt Street, Glasgow,	1889
	John David Williams, M.D., C.M., 20 Windsor Place, Cardiff,	1889
250	James Fox, M.B., M.R.C.S. Eng., Croston, near Preston,	1889
	S. M'Murtry, M D., Louisville, Kentucky, U.S.A.,	1889
	Hugh Jamieson, M.D., C.M., 13 Lauriston Place,	1889
	Joseph Price, M.D., Philadelphia, U.S.A.,	1889
	Thomas Wm. Nassau Greene, L.R.C.P. Ed., L.R.C.S.I., 127 Labola, Monte Video,	1889
255	John Clarence Webster, M.D., F.R.C.P. Ed., 20 Charlotte Square,	1889
	William George Aitchison Robertson, M.D., F.R.C.P. Ed., 26 Minto Street,	1889
	John Edward Sang, L.R.C.P. & S. Ed., Bedford Hill, Balham, London, S.W.,	1889
	William Basil Orr, M.D., C.M., 13 Braid Road,	1889
	Frederick Mann, M.B., C.M., Old Square, Ashton-on-Lyne,	1889
260	Edward Farr Armour, M.B., C.M., 149 Bruntsfield Place,	1889
	Wm. C. Little, M.D., Warracknabeal, Victoria, Australia,	1889
	George Wilkinson, M.B., C.M., 109 Park Road, Liverpool,	1889
	James Lackie, M.D., C.M., 14 Hope Street,	1889
	James Wilson, M.B., C.M., 53 Inverleith Row,	1889
265	Alexander John Keiller, L.R.C.P. & S. Ed., 54 Northumberland Street,	1889
	Archibald Maclean, M.D., C.M., Springside, Kilmarnock,	1890
	T W Lyle, M.B., C.M., 50 Grange Road,	1890
	Thomas Dobson Poole, M.D., C.M., St Anne's-on-the-Sea, Lancashire,	1890
	Walter Scott Gibson, M.B., C.M.,	1890
270	James Fitz-Gerald, M.B., C.M., Kaitangata, Otago, New Zealand,	1890
	Charles Newberry Cobbett, M.D., C.M., 45 Rosslyn Hill, Hampstead, London, N.W.,	1890
	Alexander William Gordon Price, M.B., C.M., 9 Grange Rd.,	1890
	Hugh Shapter Robinson, M.R.C.S. Eng., L.R.C.P. Ed., Talfourd Road, Camberwell, London, S.E.,	1890
	H. M'Ewen, M.D., Ontario, Canada,	1890
275	George Matheson Cullen, M.D., C.M., 48 Lauriston Place,	1890

		Date of Admission.
	Frederick Albert Lawton Lockhart, M.B., C.M., Montreal, Canada,	1890
	Edmund Frederick Tanney Price, M.B., C.M., 1 Middleby St.,	1890
	George Lovell Gulland, M.D., F.R.C.P. Ed., 6 Alva Street,	1890
	Ernest Theophilus Roberts, M.B., C.M., 85 Skipton Road, Keighley,	1890
280	Owen Foulkes Evans, M.D., C.M., 79 Mulgrove St., Liverpool,	1890
	James Duncan Farquharson, M.B., C.M., 242 Westgate Road, Newcastle-on-Tyne,	1890
	William Smith, L.R.C.P. & S. Ed., 14 Hartington Gardens,	1890
	Harvey Littlejohn, M.B., F.R.C.S. Ed., 13 Victoria Road, Sheffield,	1890
	Carstairs Cumming Douglas, M.B., C.M., Skelmorlie, Ayrshire,	1890
285	Robert Wise, M.D., C.M., 5 Weston Park, Crouch End, London, N.,	1890
	William Russell, M.D., F.R.C.P. Ed., 46 Albany Street,	1890
	William Paterson, M.B., C.M.,	1890
	Alexander Scott Duncan, M.B., C.M., P. & O. ss. "Ganges," London,	1890
	Prof. William Keiller, F.R.C.S. Ed., Galveston, Texas, U.S.A.,	1890
290	A P Chown, M.D., Kingston, Canada,	1891
	Michael Dewar, M.D., C.M., 24 Lauriston Place,	1891
	Gains T. Smith, M.D., Moncton, New Brunswick,	1891
	John Hugh Alexander Laing, M.B., C.M., 11 Melville Street,	1891
	Robert Thin, M.B., F.R.C.P. Ed., 38 Albany Street,	1891
295	Charles Edward Lester, L.R.C.P. & S. Ed., Mudgee, N.S.W., Australia,	1891
	Thomas Lawson, M.B., C.M., 16 Dean Terrace,	1891
	Alexander H. Vassie, M.B., C.M., Kirkcaldy,	1891
	James Harvey, M.B., C.M., 1 Leopold Place,	1891
	Alexander Henderson, M.B., C.M., 17 Fettes Row,	1891
300	James Smith, M.B., C.M., 1 Parsonsgreen Terrace,	1891
	C. Carty Salmon, L.R.C.P. & S. Ed., "Newells," Toorak Road, South Yarra, Melbourne, Australia,	1891
	Geo. Balfour Marshall, M.D., C.M., 11 Woodside Cres., Glasgow,	1891
	Edward Henry Alexander, M.B., M.R.C.S. Eng., Dunedin, New Zealand,	1891
	William Booth, F.R.C.S. Ed., 2 Minto Street,	1891
305	Harry St Clair Gray, M.D., C.M., 15 Newton Ter., Glasgow,	1891
	Richard T. Yoe, M.D., Louisville, Kentucky, U.S.A.,	1891
	Alexander Bruce Giles, M.B., C.M., 1 Kew Terrace,	1891
	James Y. Simpson Young, M.B., C.M., 14 Ainslie Place,	1891
	Alexander Charles Harkness, L.R.C.P. & S. Ed., Willoughbridge, Market Drayton, Salop,	1891
310	Alexander Jacobus van Niekerk, M.B., C.M., Johannesburg, South Africa,	1891
	Hamilton G. Langwill, M.B., M.R.C.P. Ed., 49 Charlotte Street, Leith,	1891
	Herbert Ernest Lee, M.B., C.M., Gumedah, N.S.W., Australia,	1891
	Charles Martin, M.B., C.M., 35 George Road, Edgbaston, Birmingham,	1892
	Wm. Murray Cairns, M.B., C.M., Taiwanfoo, Formosa, China,	1892
315	Robert Dundas Helm, M.D., C.M., 3 Alfred Street North, Portland Square, Carlisle,	1892
	William Wood, M.B., C.M., 19 Roxburgh Street,	1892
	James Thomas Moore Giffen, F.R.C.S. Ed., 133 Boughton, Chester,	1892
	John Alex. Robertson, M.B., C.M., Whitsome, Chirnside,	1892
	Frank Dendle, M.B., C.M., Lochgelly, Fife,	1892
320	Julius Henry Beilby, M.B., C.M., 10 Clarendon Crescent,	1892
	Frederick Thomas Anderson, L.R.C.P. & S. Ed., Stanford, Lipbook, Hants,	1892

		Date of Admission.
	J. Gordon Smith, L.R.C.P. & S. Ed., Falmouth, Jamaica,	1892
	Simson Carstairs Fowler, M.B., C.M., Juniper Green,	1892
	Hugh Ernest Fraser, M.B., C.M., 63 Church Street, Inverness,	1892
325	John Alexander Campbell Kynoch, M.B., C.M., 30 Springfield, Dundee,	1892
	Alexander Brown Ritchie, M.B., C.M., Hulme, Manchester,	1892
	Walter John Shaw, M.B., C.M., Innerleithen,	1892
	Robert Stirling, M.D., C.M., 4 Athole Place, Perth,	1892
	William Henry Vickery, F.R.C.S. Eng., L.R.C.P.L., 52 Elswick Road, Newcastle-on-Tyne,	1892
330	George Foggin, L.R.C.P. & S. Ed., 63 Westmorland Road, Newcastle-on-Tyne,	1892
	William Ramsay Smith, M.B., C.M., Plas Newydd, Rhyl,	1892
	James Cecil Palmer, M.B., F.R.C.S. Ed.,	1892
	A. Watson Munro, M.D., Sydney, Australia,	1892
	Charles Frederick Ponder, M.B., C.M., Guild Mission House, Kalimpong, Darjeeling, India,	1892
335	John Tod, M.B., C.M., 93 Ferry Road,	1892
	Richard J. Erskine Young, M.D., C.M., 14 Ainslie Place,	1892
	George Thomas Cooke Adams, L.R.C.P. & S. Ed., Alphington, near Melbourne, Australia,	1892
	George Henry Walter Smith, M.D., C.M., Blenheim, Paddington, Sydney, Australia,	1892
	John Lawson Dick, M.B., C.M.,	1892
340	Charles Croomhall Easterbrook, M.B., C.M., Royal Infirmary,	1892
	Walter Petrie-Simpson, M.B., C.M., 29 Lauder Road,	1892
	James Ernest Moorhouse, M.B., C.M., 1 Windsor Place, Stirling,	1892
	Alfred James Anderson Peters, L.R.C.P. & S. Ed., 97 Keptie Street, Arbroath,	1892
	D W Johnston, F.R.C.S. Ed., P.O. Box 2022, Johannesburg, South Africa,	1892
345	David George Davidson, M.B., C.M., 18 Granville Terrace,	1892
	Robert M'Dowall Brown, M.B., C.M.,	1892
	Allen Thomson Sloan, M.D., C.M., 22 Forth Street,	1893
	Robert Balfour Graham, F.R.C.S. Ed., Leven, Fife,	1893
	Albert Frederick Rosa, M.B., C.M., 20 Dundonald Street,	1893
350	George Benjamin Mitchell, M.B., C.M., 1 Skinner Street, Whitby,	1893
	Isaac Wood, M.D., Kingston, Ontario, Canada,	1893
	Andrew Walker, M.B., C.M., 8 Hope Street,	1893
	H Robins, M.D., Sav-la-Mar, Jamaica,	1893
	F L Burdon, M.D., New Baltimore, Michigan, U.S.A.,	1893
355	L J Schofield, M.D., Warresburg, Mo., U.S.A.,	1893
	David Milligan, M.B., C.M., 11 Palmerston Place,	1893
	John Howard-Jones, M.B., C.M., D.Sc., Dowlais, Glamorganshire,	1893
	George Morton Wilcockson, L.R.C.P. & S. Ed., 183 Southampton Street, Reading,	1893
	Albert Franklin M'Vety, M.D., M.R.C.S. Eng., Toledo, Ohio,	1893
360	John Macrae, M.D., C.M., Lynwood, Murrayfield,	1893
	Ernest Switzer Forde, L.R.C.P. & S. Ed., Gorebridge,	1893
	George Wade, M.D., C.M., Melrose,	1893
	Philip Grierson Borrowman, M.B., C.M., Elie, Fife,	1893
	Thomas Finlayson Macdonald, M.B., C.M., 9 Palmerston Pl.,	1893
365	John Liddell, M.D., C.M., North View, Victoria Avenue, Harrogate,	1893
	W. Herbert Gregory, M.B., North Bar Street, Beverley, Yorks,	1893
	E Coleman Moore, M.B., C.M., 2 Coates Place,	1893
	Cuthbert Christy, M.B., C.M., London Road, Hampton-on-Thames,	1893

		Date of Admission.
	Robert Hutchison, M.B., C.M., Royal Hospital for Sick Children,	1893
370	James Gibson Cattanach, M.B., C.M., 3 Alvanley Terrace,	1893
	George Elder, M.B., C.M., Sick Children's Hospital,	1893
	Alexander Maitland Easterbrook, M.B., C.M., Royal Infirmary,	1893
	W H M'Kinlay, M.D., 137 West 26th St., New York,	1893
	Robert William Roberts, L.R.C.P. & S. Ed., Bryn Hafren House, Newton, Mont.,	1894
375	Claude B. Ker, M.B., C.M., 4 Howard Place,	1894
	John Malcolm Farquharson, M.B., C.M., 35 Gilmore Pl.,	1894
	Charles Alexander Butchart, M.B., C.M., 26 Leith Walk,	1894
	Frederick Maurice Graham, L.R.C.P. & S. Ed., Medical Mission Dispensary, Cowgate,	1894
	Robert Hoggan, M.B., C.M., 3 Montebello, Joppa,	1894
380	James Livingstone Thompson, M.B., C.M., Australasian Club,	1894
	George Stevenson Shirt Hirst, M.B., C.M., Ranelagh, Willis Road, Cambridge,	1894
	John Stevens, M.D., M.R.C.P. Ed., 3 Shandon Crescent,	1894
	Charles Isodon Bodon, M.D.,	1894
	Hugh Lewis Hughes, L.R.C.P. & S. Ed., Gwerullwyn House, Dowlais, Glamorganshire,	1894
	Sylvanus Glanville Morris, M.B., C.M., 12 Gore Terrace, Swansea,	1894
386	Georges P. Coromilas, M.D., Calamata, Greece,	1894

ORDINARY FELLOWS.

ARRANGED ALPHABETICALLY.

(*a.*) LIFE MEMBERS.

	Barbour, Dr A. H. Freeland, 4 Charlotte Square,	1879
	Craig, Dr William, 71 Bruntsfield Place,	1870
	Ponder, Dr Charles F., Guild Mission House, Kalimpong, Darjeeling, India,	1892
	Ross, Dr James F. W., 481 Sherbourne Street, Toronto, Canada,	1889
5	Simpson, Professor A. R., 52 Queen Street,	1858

(*b.*) ANNUAL SUBSCRIBERS.

	Adam, Dr George Rothwell, Carlton House, Hotham Street, East Melbourne, Australia,	1879
	Adams, Dr George T. Cooke, Heidelberg Road, Alphington, near Melbourne, Victoria Australia,	1892
	Affleck, Dr J. O., 38 Heriot Row,	1869
	Aikman, Dr Alfred, The Elms, Beverley Road, Hull,	1886
10	Aitchison, Dr R. S., 74 Great King Street,	1886
	Alexander, Dr E. H., Albert Street, Dunedin, New Zealand,	1891
	Alexander, Dr W. B., 8 Blenheim Place,	1882
	Allison, Dr J., Fuller House, Kettering, Northampton,	1888
	Anderson, Dr Fred. T., Stanford, Headley, Hants,	1892
15	Andrew, Dr James, 2 Atholl Crescent,	1868
	Anglin, Dr W. G., 52 Earl Street, Kingston, Ontario,	1885
	Archibald, Dr J., 2 The Avenue, Beckenham, Kent,	1877
	Armitage, Dr J. A., 28 Waterloo Road South, Wolverhampton,	1886
	Armour, Dr E. F., 149 Bruntsfield Place,	1889
20	Badger, Dr W., Penicuik,	1880
	Baildon, Dr F. J., 57 Hoghton Street, Southport,	1887
	Balfour, Dr Andrew, 12 Abercorn Terrace, Portobello,	1877
	Balfour, Dr G. W., 17 Walker Street,	1847
	Balfour, Dr J. Craig, West Street, Belford, Northumberland,	1884
25	Balfour, Dr T. A. G., 51 George Square,	1855

		Date of Admission.
	Ballantyne, Dr A., Dalkeith,	1870
	Ballantyne, Dr J. W., 24 Melville Street,	1883
	Barrington, Dr Fourness, care of Commercial Banking Company of Sydney, 18 Birchin Lane, London, E.C.,	1884
	Baumgartner, Dr H. S., Saville Place, Newcastle-on-Tyne,	1887
30	Beattie, Dr Samuel, Pitlochry,	1888
	Beatty, Dr W. J., Stockton-on-Tees,	1884
	Bedford, Surgeon-Captain Charles H., M.D., D.Sc., M.R.C.S. Eng., H.M. Indian Medical Service, care of W. Watson & Co., 28 Apollo Street, Bombay,	1888
	Beilby, Dr Julius H., 10 Clarendon Crescent,	1892
	Bell, Dr James L., Driffield, Yorkshire,	1884
35	Bell, Dr Robert, 29 Lynedoch Street, Glasgow, W.,	1878
	Bentley, Dr G. H., Kirkliston,	1877
	Black, Dr Alexander, 13 Howe Street,	1881
	Black, Dr J. Watt, 15 Clarges Street, Piccadilly, London, W.,	1863
	Blaikie, Dr R. H., 42 Minto Street,	1888
40	Blair, Dr J. A., Straiton Manse, Maybole,	1887
	Bleloch, Dr A., 2 Lonsdale Terrace,	1876
	Boddie, Dr G. P., 147 Bruntsfield Place,	1889
	Bodon, Dr C. I., 39 Oakley Sq., Regent's Park, London, N.W.,	1894
	Booth, Dr William, 2 Minto Street,	1891
45	Borrowman, Dr Philip G., Elie, Fife,	1893
	Boxill, Dr N. L., Buttalls, St George, Barbados,	1888
	Boyd, Dr J. St Clair, 27 Victoria Place, Belfast,	1887
	Brewis, Dr N. T., 23 Rutland Street,	1883
	Brewis, Dr R. A., Waratah, Tasmania,	1888
50	Brodie, Dr W. Haig, 88 Oxford Ter., Hyde Park, London, W.,	1881
	Brown, Dr R. M. Brown, care of Mr M'Dowell, 56 George Street,	1892
	Bruce, Dr Alexander, 13 Alva Street,	1887
	Buist, Dr J. W., 1 Clifton Terrace,	1877
	Burdon, Dr F. L., New Baltimore, Michigan, U.S.A.,	1893
55	Butchart, Dr C. A., 26 Leith Walk,	1894
	Cairns, Dr W. Murray, E.P. Mission, Taiwanfoo, Formosa, China,	1892
	Calder, Dr H. L., 60 Leith Walk,	1882
	Cameron, Prof. James C., M.D., 941 Dorchester St., Montreal,	1888
	Campbell, Dr Alexander, 1 Clarendon Terrace, Dundee,	1885
60	Cappie, Dr James, 37 Lauriston Place,	1862
	Carmichael, Dr Edward, 21 Abercromby Place,	1887
	Carmichael, Dr James, 22 Northumberland Street,	1871
	Cattanach, Dr J. G., 3 Alvanley Terrace,	1893
	Chepmell, Dr Charles, 87 Buckingham Road, Brighton,	1887
65	Chown, Dr A. P., 255 Brock Street, Kingston, Canada,	1891
	Christy, Dr Cuthbert, London Road, Hampton-on-Thames,	1893
	Church, Dr H. M., 36 George Square,	1875
	Clark, Dr J. A., 4 Cambridge Street,	1887
	Cobbett, Dr C. N., 45 Rosslyn Hill, Hampstead, London, N.W.,	1890
70	Collie, Dr Robert J., St George's Lodge, Catford, London, S.E.,	1883
	Connel, Dr J., Peebles,	1869
	Coromilas, Dr Georges P., Calamata, Greece,	1894
	Cox, Dr Joshua J., St Ronan's, Eccles, Manchester,	1876
	Croom, Dr J. Halliday, 25 Charlotte Square,	1870
75	Croudace, Dr J. H., 23 Marston Road, Stafford,	1878
	Cruickshank, Dr B., Nairn,	1885
	Cullen, Dr G. M., 48 Lauriston Place,	1890
	Cumming, Dr A. S., 18 Ainslie Place,	1885
	Cunninghame, Dr John, Port Chalmers, New Zealand,	1888
80	Currie, Dr A. S., 81 Queen's Road, Finsbury Park, London, N.,	1882
	Darling, Dr T. Brown, 13 Merchiston Place,	1884
	Davidson, Dr D. G., 18 Granville Terrace,	1892
	Davies, Dr E. T., 97 Shaw Street, Liverpool,	1887

		Date of Admission.
	Dendle, Dr Frank, Lochgelly, Fife,	1892
85	D'Evelyn, Dr F. W., 219 Geary Street, San Francisco,	1887
	Deverell, Dr H. C., 12 Windsor Street,	1882
	Dewar, Dr M., 24 Lauriston Place,	1891
	Dick, Dr J. L., 61 Dalry Road,	1892
	Dickson, Dr George, 9 India Street,	1867
90	Douglas, Dr A. Home, 4 Palmerston Place,	1888
	Douglas, Dr Carstairs, 3 Eglinton Place, Skelmorlie, Ayrshire,	1890
	Drumheller, Dr F. E., 406 Market St., Sunbury, Pennsylvania,	1887
	Dubourg, Dr J. R. H., 120 Islington, Liverpool,	1887
	Duncan, Dr A. J., Nethergate House, Nethergate, Dundee,	1879
95	Duncan, Dr A. S., P. & O. s s. "Ganges," Royal Albert Dock, London,	1890
	Dunlop, Dr H. M., 20 Abercromby Place,	1884
	Dunsmure, Dr J., 53 Queen Street,	1876
	Easterbrook, Dr A. M., Royal Infirmary,	1893
	Easterbrook, Dr C. C., Royal Infirmary,	1892
100	Eden, Dr T. Watts, 21 Bentick Street, Cavendish Square, London, W.,	1888
	Elder, Dr George, Sick Children's Hospital,	1893
	Elder, Dr W. Nicol, 6 Torphichen Street,	1879
	Evans, Dr O. F., 79 Mulgrave Street, Liverpool,	1890
	Farquharson, Dr J. D., 242 Westgate Road, Newcastle-on-Tyne,	1890
105	Farquharson, Dr J. M., 35 Gilmore Place,	1894
	Felkin, Dr R. W., 8 Alva Street,	1884
	Fenwick, Dr Kenneth N., 141 King Street West, Kingston, Canada,	1885
	Ferguson, Dr J. Haig, 25 Rutland Street,	1885
	Finlay, Dr W. A., St Helen's, Russell Place, Trinity,	1880
110	Fitz-Gerald, Dr James, Kaitangata, Otago, New Zealand,	1890
	Foggin, Dr George, 63 Westmorland Road, Newcastle-on-Tyne,	1892
	Forbes, Dr A., Liberton,	1887
	Forde, Dr E. S., Gorebridge,	1893
	Fordyce, Dr William, 6 Clifton Terrace,	1888
115	Foulis, Dr James, 34 Heriot Row,	1878
	Fowler, Dr Simson C., Juniper Green,	1892
	Fox, Dr James, Oak House, Croston, near Preston, Lancashire,	1889
	Fox, Dr J. W., 68 Lupus Street, Pimlico, London, S.W.,	1887
	Fraser, Dr F. W. Dyce, Gorton House, Lasswade,	1883
120	Fraser, Dr H. E., 63 Church Street, Inverness,	1892
	Fraser, Dr J. Joynor, Hessle, East Yorks,	1880
	Fraser, Dr Nutting S., 228 Duckworth Street, St John's, Newfoundland,	1887
	Freeland, Dr Richard, Broxburn,	1879
	Gayton, Dr William, Bartram Lodge, Fleet Road, Hampstead, London, N.W.,	1885
125	Gemmell, Dr J. E., 12 Rodney Street, Liverpool,	1885
	Gibson, Dr W. A., 3 Overstrand Mansions, Battersea Park, London, S.W.,	1888
	Gibson, Dr W. Scott,	1890
	Giffen, Dr J. J. M., 133 Boughton, Chester,	1892
	Giles, Dr A. B., 1 Kew Terrace,	1891
130	Gilmour, Dr T. F., Port Ellen, Islay,	1882
	Glaister, Dr John, 4 Grafton Place, Grafton Square, Glasgow,	1879
	Gracie, Dr C. B., Buccleuch Villa, Burntisland,	1885
	Graham, Dr F. M., Medical Mission Dispensary, Cowgate,	1894
	Graham, Dr J. Gibson, 5 Ashgrove Ter., Partickhill, Glasgow,	1888
135	Graham, Dr R. Balfour, Leven, Fife,	1893
	Grasett, Dr F. L., 208 Simcoe Street, Toronto, Canada,	1877
	Gray, Dr H. St Clair, 15 Newton Terrace, Glasgow,	1891
	Greene, Dr J. W. N., 127 Zabala, Monte Video,	1889
	Gregory, Dr W. H., North Bar Street, Beverley, Yorks,	1893

		Date of Admission.
140	Gulland, Dr G. L., 6 Alva Street,	1890
	Guthrie, Dr A. Cowan, Swanville, 134 Newhaven Road,	1888
	Hamilton, Dr J. R., Hawick,	1879
	Hamp, Dr J. Walton, Penn Road, Wolverhampton,	1886
	Hardcastle, Dr H. M., Archbold Lodge, Newcastle-on-Tyne,	1886
145	Hardie, Dr Thomas, 10 John's Place, Leith,	1870
	Harkness, Dr A. C., Willoughbridge, Market Drayton, Salop,	1891
	Hart, Dr D. Berry, 29 Charlotte Square,	1877
	Harvey, Dr Charles G., Kingswood, Sav-la-Mar, Jamaica, W.I.,	1889
	Harvey, Dr James, 1 Leopold Place,	1891
150	Haultain, Dr F. W. N., 17 Rutland Street,	1884
	Havelock, Dr J. G., Sunnyside, Montrose,	1888
	Hay, Dr Henry, 7 Brandon Street,	1879
	Helm, Dr J. H., Ratho,	1888
	Helm, Dr R. Dundas, 3 Alfred Street N., Portland Sq., Carlisle,	1892
155	Henderson, Dr Alexander, 17 Fettes Row,	1891
	Henderson, Dr John, 7 John's Place, Leith,	1857
	Hewetson, Dr J., Holmfield, Reigate,	1881
	Hirst, Dr George S. S., Ranelagh, Willis Road, Cambridge,	1894
	Hoggan, Dr R., 3 Montebello, Joppa,	1894
160	Hooper, Dr J. W. D., Lying-in Hospital, Melbourne, Australia,	1884
	Howard-Jones, Dr J., Dowlais, Glamorganshire,	1893
	Hughes, Dr H. L., Gwerullwyn House, Dowlais, Glamorganshire,	1894
	Hunter, Dr George, 33 Palmerston Place,	1881
	Hurst, Dr George, Scott Chambers, 96 Pitt St., Sydney, N.S.W.,	1881
165	Husband, Dr William, 4 Royal Circus,	1857
	Hutcheson, Dr J., 44 Moray Place,	1888
	Hutchison, Dr Robert, Sick Children's Hospital,	1893
	Hyslop, Dr J. M'A., 22 Palmerston Place,	1874
	Inch, Dr Robert, Gorebridge,	1887
170	Jamieson, Dr Hugh, 13 Lauriston Place,	1889
	Jamieson, Dr James, 43 George Square,	1866
	Johnston, Dr D. W., P.O. Box 2022, Johannesburg, South African Republic,	1892
	Johnston, Dr W., Stirling,	1871
	Keiller, Dr A. J., 54 Northumberland Street,	1889
175	Keiller, Prof. Wm., Medical College, Galveston, Texas, U.S.A.,	1890
	Ker, Dr C. B., 4 Howard Place,	1894
	King, Dr J. K., The Glen Springs Sanitorium, Watkins, New York, U.S.,	1884
	Kirk, Dr Robert, Bathgate,	1887
	Kynoch, Dr Campbell, 30 Springfield, Dundee,	1892
180	Lackie, Dr James, 14 Hope Street,	1889
	Laing, Dr J. H. A., 11 Melville Street,	1891
	Langwell, Dr H. G., 49 Charlotte Street, Leith,	1891
	Lawson, Dr Thomas, 16 Dean Terrace,	1891
	Lee, Dr Herbert E., Gunnedah, N.S.W., Australia,	1892
185	Leigh, Dr J. Dickinson, The White House, Brotton, Yorkshire,	1886
	Lester, Dr Charles E., Mudgee, N.S.W., Australia,	1891
	Liddell, Dr J., North View, Victoria Avenue, Harrogate,	1893
	Linton, Dr John, 60 George Square,	1863
	Linton, Dr Simon, Grangemouth,	1887
190	Little, Dr W. C., Warracknabeal, Victoria, Australia,	1889
	Littlejohn, Dr Harvey, 13 Victoria Road, Sheffield,	1890
	Lockhart, Dr F. A. L., 59 Metcalfe Street, Montreal, Canada,	1890
	Lucas, Dr Robert, Dalkeith,	1871
	Lundie, Dr William, 3 Glengyle Terrace,	1888
195	Lyle, Dr F. W., 50 Grange Road,	1890
	M'Call, Dr John, 4 Leopold Place,	1886
	M'Callum, Dr H., Pitlochry,	1887
	M'Creadie, Dr William, 164 Ferry Road,	1887
	Macdonald, Dr T. F., 9 Palmerston Place,	1893

		Date of Admission.
200	Macdonald, Dr W. B., Dunbar,	1887
	Macdonald, Dr W. Fraser, Auchtermuchty,	1884
	M'Ewen, Dr Hugh, Carleton Place, Ontario, Canada,	1890
	Macgregor, Dr G. S., 2 Burnbank Terrace, Glasgow,	1888
	Mackay, Dr George, 2A Gilmore Place,	1879
205	Mackay, Dr G. Hugh, Elgin,	1884
	Mackenzie, Dr R., Napier Villa, Merchiston,	1887
	M'Kinlay, Dr W. H., 137 West 26th Street, New York,	1893
	MacLachlan, Dr A., Beauly,	1887
	M'Lean, Dr Archibald, Springside, Kilmarnock,	1890
210	M'Murtry, Dr L. S., 231 West Chesnut Street, Louisville, Kentucky, U.S.A.,	1889
	M'Nab, Dr John, Obbe, Harris, Stornoway,	1873
	Mackness, Dr G. O. C., Fort Street House, Broughty-Ferry,	1887
	Macrae, Dr John, Lynwood, Murrayfield,	1893
	M'Vety, Dr A. Franklin, 235 12th Bath Street, Toledo, Ohio,	1893
215	Macvie, Dr S., Chirnside,	1881
	M'Watt, Dr John, Morelands, Duns,	1879
	Macwatt, Dr R. C., Indian Medical Service, 15th Bengal Cavalry, care of Messrs King, King, & Co., Bombay,	1885
	Maddox, Dr Ralph H., I.M.S., care of Messrs William Watson & Co., 28 Apollo Street, Bombay,	1887
	Mann, Dr F. W., Old Square, Ashton-on-Lyne,	1889
220	Marshall, Dr G. Balfour, 11 Woodside Crescent, Glasgow,	1891
	Marshall, Dr William, Milnathort,	1884
	Martin, Dr Charles, 35 George Road, Edgbaston, Birmingham,	1892
	Martin, Dr Christopher, 35 George Rd., Edgbaston, Birmingham,	1888
	Martin, Dr J. W., 33 Chesterton Road, London, W.,	1887
225	Matheson, Dr A. A., 41 George Square,	1887
	Matheson, Dr F. W.,	1888
	Matthew, Dr Alexander, Corstorphine,	1885
	Menzies, Dr David, 20 Rutland Square,	1877
	Messer, Dr Fordyce, Helensburgh,	1866
230	Michael, Dr Gustave, 188 Commercial Road, London, E.,	1885
	Millard, Dr W. W., 3 George Place,	1884
	Miller, Dr W. H., 6 West Circus Place,	1886
	Milligan, Dr D., 11 Palmerston Place,	1893
	Mills, Dr James, Janesville, Wisconsin, U.S.A.,	1885
235	Mitchell, Dr G. B., 1 Skinner Street, Whitby,	1893
	Moir, Dr Alex., 30 Buccleuch Place,	1876
	Moore, Dr E. Coleman, 2 Coates Place,	1893
	Moorhouse, Dr J. Ernest, 1 Windsor Place, Stirling,	1892
	More, Dr James, Rothwell, Kettering, Northampton,	1880
240	Morison, Dr Albert E., Brougham Terrace, Hartlepool,	1888
	Morris, Dr S. Glanville, 12 Gore Terrace, Swansea,	1894
	Mowat, Dr John, 1 Hope Park Terrace,	1884
	Munro, Dr A. Watson, 183 Liverpool Street, Sydney, Australia,	1892
	Murphy, Dr James, Holly House, Sunderland,	1877
245	Murray, Dr A. Lang, 18 Duddingston Park, Portobello,	1889
	Murray, Dr D. R., 41 Albany Street, Leith,	1878
	Murray, Dr James, 1 Brandon Street,	1879
	Murray, Dr R. Milne, 10 Hope Street,	1880
	Nairne, Dr J. Stuart, 197 Pitt Street, Glasgow,	1889
250	Napier, Dr A. D. L., 67 Grosvenor Street, Grosvenor Square, London, W.,	1878
	Narayan, Mr Kumar B., Cooch Behar, India,	1888
	Nesham, Dr T. Cargill, 12 Ellison Place, Newcastle-on-Tyne,	1885
	Niekerk, Dr Alexander van, Box 68, Johannesburg, S. African Republic,	1891
	Nisbet, Dr W. B., Townsville, N. Queensland, Australia,	1886
255	Oakes, Dr Arthur, "Warialda," Portarlington Road, Bournemouth,	1879

		Date of Admission.
	Oliphant, Dr E. H. Lawrence, 18 Burnbank Terrace, Glasgow,	1885
	Orr, Dr John, Innerleithen,	1887
	Orr, Dr W. Basil, 13 Braid Road,	1889
	Pairman, Dr T. Wyld, H.M. Prison, Lyttelton, New Zealand,	1883
260	Palmer, Dr J. C.,	1892
	Pareira, Dr Jervis, Delegado da Saude, do Districto de Lourenço Marguz, Em Mozambique Africa Portuguesa,	1888
	Paterson, Dr G. Keppie, 17 Forth Street,	1882
	Paterson, Dr William,	1890
	Peddie, Dr Alexander, 15 Rutland Street,	1840
265	Peddie, Dr H. Anderson, 24 Palmerston Place,	1882
	Perigal, Dr A., New Barnet, Herts,	1887
	Peters, Dr James A., 97 Keptie Street, Arbroath,	1892
	Petrie-Simpson, Dr W., 29 Lauder Road,	1892
	Pirie, Dr John, 10 Ardmillan Terrace,	1888
270	Playfair, Dr John, 5 Melville Crescent,	1873
	Poole, Dr T. D., St Anne's-on-the-Sea, Lancashire,	1890
	Porteous, Dr J. Lindsay, 83 Warburton Avenue, Yonkers, New York,	1875
	Price, Dr A. W. Gordon, 9 Grange Road,	1890
	Price, Dr E. F. T., 1 Middleby Street,	1890
275	Price, Dr Joseph, 500 20th Street, Philadelphia, U.S.A.,	1889
	Primrose, Dr Alex., 196 Simcoe Street, Toronto, Canada,	1887
	Pringle, Dr J. Hogarth, 256 Bath Street, Glasgow,	1886
	Proudfoot, Dr Thomas, 13 Lauriston Place,	1884
	Puckle, Dr S. Hale, Bishop's Castle, Shropshire,	1885
280	Ranking, Dr J. E., Tunbridge Wells,	1881
	Rattray, Dr A. M. T., Portobello,	1869
	Reid, Dr W. L., 7 Royal Crescent, Glasgow, W.,	1880
	Reid, Dr W. Spence, Oakley, Kirkcudbright,	1880
	Rendell, Dr Herbert R., P.O. Box 606, St John's, Newfoundland,	1882
285	Richardson, Dr William, Bath Lodge. Reading,	1884
	Ritchie, Dr A. Brown, 117 Boston Street, Hulme, Manchester,	1892
	Ritchie, Dr D. W. L., 22 East Claremont Street,	1883
	Ritchie, Dr James, 22 Charlotte Square,	1880
	Ritchie, Dr R. Peel, 1 Melville Crescent,	1861
290	Roberton, Dr Ernest, Auckland, New Zealand,	1887
	Roberts, Dr Ernest T., 85 Skipton Road, Keighley,	1890
	Roberts, Dr R. W., Bryn Hafren House, Newtown, Mont.,	1894
	Robertson, Dr J., 30 Lauriston Place,	1881
	Robertson, Dr John A., Whitsome Manse, Chirnside,	1892
295	Robertson, Dr W. B., St Anne's, Thurlow Park Road, West Dulwich, London, S.E.,	1870
	Robertson, Dr W. G. A., 26 Minto Street,	1889
	Robins, Dr H., Sav-la-Mar, Jamaica,	1893
	Robinson, Dr H. Shapter, Talfourd House, Talfourd Road, Camberwell, London, S.E.,	1890
	Robson, Dr B. S., 66 Brighton Grove, Newcastle-on-Tyne,	1887
300	Ronalds, Dr Tennent, Killochan Castle, Girvan,	1887
	Ronaldson, Dr T. R., 3 Bruntsfield Terrace,	1877
	Rosa, Dr Albert F., 20 Dundonald Street,	1893
	Rosa, Dr George, 12 Gayfield Square,	1867
	Rowland, Dr L. Lindsay, Salem, Oregon, U.S.A.,	1879
305	Russell, Dr W., 46 Albany Street,	1890
	Salmon, Dr C. Carty, "Newells," Toorak Road, South Yarra, Melbourne, Australia,	1891
	Sang, Dr J. E., Balcownie, Bedford Hill, Balham, London, S.W.,	1889
	Saunders, Dr F. A., Grahamstown, Cape Colony, South Africa,	1885
	Schofield, Dr L. J., Warresburg, Mo., U.S.A.,	1893
310	Scott, Dr T. R., Musselburgh,	1880
	Shaw, Dr W. J., Innerleithen,	1892

		Date of Admission.
	Shiels, Dr G. F., 229 Geary Street, San Francisco,	1887
	Simpson, Dr James, Portobello,	1882
	Sloan, Dr Allen T., 22 Forth Street,	1893
315	Sloan, Dr S., 5 Somerset Pl., Sauchiehall St. West, Glasgow,	1887
	Smart, Dr David, 74 Hartington Road, Sefton Park, Liverpool,	1882
	Smith, Dr D., Fullerton Cottage, Johnshaven, Montrose,	1870
	Smith, Dr G. H. Walton, Morella, Point Piper Road, Woollahra, Sydney, Australia,	1892
	Smith, Dr Gains T., Moncton, New Brunswick, Canada,	1891
320	Smith, Dr James, 1 Parsonsgreen Terrace,	1891
	Smith, Dr John, Brycehall, Kirkcaldy,	1885
	Smith, Dr J. Gordon, Falmouth, Jamaica,	1892
	Smith, Dr William. 14 Hartington Gardens,	1890
	Smith, Dr W. Ramsay, Plas Newydd, Rhyl,	1892
325	Sneddon, Dr William, Cupar-Fife,	1888
	Somerville, Dr Robert, Galashiels,	1881
	Spalding, Dr William, Gorebridge,	1867
	Spence, Dr R., Burntisland,	1878
	Spence, Dr William, Dollar,	1884
330	Stevens, Dr John, 3 Shandon Crescent,	1894
	Stewart, Dr J. S., 15 Merchiston Place,	1884
	Stewart, Dr R., 42 George Square,	1885
	Stirling, Dr R., 4 Athole Place, Perth,	1892
	Stirling, Dr Stewart, 4 Coates Crescent,	1866
335	Sturrock, Dr J. F., Homewood, Broughty-Ferry,	1887
	Sym, Dr A. C., 144 Morningside Road,	1885
	Taylor, Dr William, 12 Melville Street,	1868
	Teacher, Dr C., 16 Newington Road,	1887
	Temple, Dr G. H., Salford Union Infirmary, Eccles, Manchester,	1888
340	Tennent, Dr J. T., Bathgate,	1888
	Thatcher, Dr C. H., 8 Melville Crescent,	1877
	Thin, Dr Robert, 38 Albany Street,	1891
	Thom, Dr Alexander, Viewfield, Crieff,	1884
	Thompson, Dr James L., Australasian Club,	1894
345	Thomson, Dr A. D. R., Musselburgh,	1877
	Thomson, Dr Alexis, 2 Coates Crescent,	1887
	Thomson, Dr James, David Place, St Heliers, Jersey,	1881
	Thomson, Dr John, 14 Coates Crescent,	1887
	Thomson, Dr J. Stitt, Dalkeith,	1877
350	Thyne, Dr T. J., 2 Dean Terrace,	1887
	Tod, Dr John, 93 Ferry Road, Leith,	1892
	Tristan, Dr R. J., Retford, Notts,	1887
	Underhill, Dr C. E., 8 Coates Crescent,	1872
	Underhill, Dr Frederick T., Mission City, British Columbia,	1885
355	Underhill, Dr T. Edgar, Dunedin, Barnt Green, Worcestershire,	1879
	Vassie, Dr Alexander H., Kirkcaldy,	1891
	Vickery, Dr W. H., 52 Elswick Road, Newcastle-on-Tyne,	1892
	Wade, Dr George, Melrose,	1893
	Walker, Dr Andrew, 8 Hope Street,	1893
360	Walker, Dr A. Wallace, 24 Forth Street,	1886
	Wallace, Dr Abraham, 64 Harley Street, London, W.,	1879
	Watson, Dr P. H., 72 Jesmond Road, Newcastle-on-Tyne,	1887
	Watson, Dr W., 54 Mayfield Road,	1865
	Waugh, Dr John, 36 Finsbury Pavement, London, E.C.,	1881
365	Webster, Dr A. D., Belleville Lodge, S. Blacket Place,	1881
	Webster, Dr J. C., 20 Charlotte Square,	1889
	Wicks, Dr Charles, South View, Fortune Green, West Hampstead, London, N.W.,	1887
	Wilcockson, Dr G. Morton, 183 Southampton Street, Reading,	1893
	Wilkinson, Dr George, 109 Park Road, Liverpool,	1889
370	Will, Dr Ogilvie, 379 Union Street, Aberdeen,	1867
	Williams, Dr J. D., 20 Windsor Place, Cardiff,	1889

		Date of Admission.
	Wilson, Dr James, 53 Inverleith Row,	1889
	Wilson, Dr T. D., 10 Newington Road,	1879
	Wise, Dr Robert, 5 Weston Park, Crouch End, London, N.,	1890
375	Wood, Dr A. Fleming, City Fever Hospital,	1889
	Wood, Dr Isaac, Kingston, Ontario,	1893
	Wood, Dr Russell, 9 Darnaway Street,	1880
	Wood, Dr Thomas, 55 Ferry Road,	1886
	Wood, Dr William, 19 Roxburgh Street,	1892
380	Wright, Dr W. F., Bonnington Mount, Bonnington Terrace,	1887
	Wylie, Dr Hamilton, 1 George Place,	1879
	Yoe, Dr Richard T., 2103 Floyd Street, Louisville, Kentucky, U.S.A.,	1891
	Young, Dr J. Y. Simpson, 14 Ainslie Place,	1891
	Young, Dr Peter, 43 Heriot Row,	1859
	Young, Dr Peter A., 25 Manor Place,	1871
386	Young, Dr R. J. Erskine, 14 Ainslie Place,	1892

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TRANSACTIONS

OF THE

EDINBURGH OBSTETRICAL SOCIETY,

FOR SESSION LV., 1893-94.

MEETING I.—NOVEMBER 8, 1893.

Professor A. R. SIMPSON, *retiring President*, afterwards Dr A. H. FREELAND BARBOUR, *President-Elect, in the Chair.*

I. VALEDICTORY ADDRESS.

By Professor A. R. SIMPSON, Retiring President of the Society.

GENTLEMEN,—Before I leave this now familiar seat, it becomes me to offer you my heartfelt thanks for the favour you showed me in making me a third time your President, and for the kindness and courtesy that have made my tenure of the office an unalloyed pleasure. There are positions of honour that entail a heavy burden of service. In this Society the energy of the Secretaries and the enthusiasm of the other Fellows give its Presidents full enjoyment of the dignity and sweets of office, enhanced by the consciousness that they are singularly free from care.

RETROSPECT.

When I was admitted to the Society five-and-thirty years ago, its membership was small, and it seemed to me to be composed entirely of grave and reverend seniors. As I look around me now, not only do I see it grown in numbers, but it seems to me to have put on an aspect of perennial youth. Everything about it betokens vitality and vigour. The balance-sheet which our so successful Treasurer, Dr Craig, has submitted to us, shows that after all

expenses have been paid, and a donation of five guineas made to the British Institute of Preventive Medicine, and a copy of the handsome Volume XVIII. of our Transactions placed, free of charge, in the hands of every Honorary and Ordinary Fellow, he has been able to add about £30 to our accumulated capital. The balance at the credit of the Society, which was only £20, 12s. 11d. when he took up the duties of the office, has grown and grown during the eighteen years of his skilful guidance of our finances, till it now amounts to £264, 7s. 11d.

This satisfactory state of the finances is due to the yearly additions made to our ranks by the younger members of the profession, as many as thirty-four having joined us last session. So that with thirty-nine Honorary Fellows, eighty-three Corresponding Fellows, and three hundred and seventy-nine Ordinary Fellows, we have to-night a total membership of just over five hundred.

The First Secretary.

The number is now but small of the veterans who first banded themselves together to form the Society, and only a few weeks ago the profession lost one of those who was most active in those early days, in the death of Dr George Paterson. His name had for some years disappeared from our roll because, in course of time, he devoted himself to another department of medicine, and became a Deputy Commissioner in Lunacy. But it is fitting that we should remember the service that he rendered to our Society when it was originated. Sir Douglas Maclagan, in a characteristically genial notice of him in the current number of the *Edinburgh Medical Journal*, tells what a conspicuous part he played in the doings of the Royal Medical Society. He might have told also that when on Saturday, December 4th, 1839, "a meeting was held in the New Town Dispensary, Thistle Street, for the purpose of considering the propriety of establishing an Obstetrical Society in Edinburgh," there were "present Drs Fairbairn, J. Moir, Pagan, Peddie, Purdie, C. Bell, Ransford, G. Paterson, and Messrs Sidey and Kennedy—Dr Fairbairn in the Chair." The quotation I make is from the first volume of our minutes, which goes on to say, "Drs Ransford and Paterson stated that, acting on the expressed wishes of several of those engaged in obstetric practice in Edinburgh, they had issued the circular summoning this meeting, and that besides those now present notes had been sent to several other practitioners, including Drs Dumbreck, Farquharson, Lewis, Malcolm, Graham Weir, Ziegler, Beilby, and J. S. Combe, who, with those above mentioned as present, and with Drs Renton and Alexander Wood,—in all, twenty—are the original members of the Society." The minute of this first meeting, and indeed of nearly all the meetings of the Society for the first six years of its existence, are in Dr Paterson's handwriting. For during all that time he

was the acting Secretary, and for part of the time he did the work of Treasurer as well. The minutes show him also contributing to the Society's Transactions cases of inflammation and abscesses of the uterine appendages, and communicating a paper by his friend John Reid, embodying his famous observations on the structure of the placenta. The Society met several times at his house in the days when it was wont to hold its meetings in rotation in the houses of the members, and, as was to be expected, from his geniality of disposition he was present at the first dinner of the Society in Clark's Hotel at Newhaven in July 1845. At the first meeting of the Society in January 1847 Dr Cumming, who succeeded him in the office of senior Secretary and Treasurer, minutes that "on the motion of Dr Simpson, the thanks of the Society were unanimously voted to the late Treasurer." Let us follow the example of those who could best appreciate the value of his work, and offer to his memory the tribute of our gratitude.

Ordinary Fellows Deceased.

Of Ordinary Fellows we have lost Dr Stewart of Kirkwall, who joined us in 1879, and Dr Milne Chapman of Inverness, who became a Fellow in 1881, and who, during his residence in Edinburgh, was a regular attendant at our meetings, and made valued contributions to our debates. But the loss which comes home to us most keenly arises from the death in August last of Dr James Young. Of him also an excellent éloge has appeared in the *Edinburgh Medical Journal* for September, which faithfully gives us the impression of an earnest, industrious, and amiable man. The writer brings out admirably the value of the services he rendered to our Society, not only as an Ordinary Fellow in the many subjects he brought before our meetings and the part he took in our discussions, but in filling the offices of Treasurer and of Vice-President, and especially in the important help he gave to Dr Peel Ritchie in connexion with the preparation and publication of the first volume of our Transactions. The practice to which he succeeded on the death of his father had in it a large obstetric element which greatly increased in the hands of our friend, who had a special interest in midwifery and the diseases of women and children; and his eager desire to keep himself abreast of obstetric advances, and his delight in sharing with his fellow-practitioners whatever object of interest came under his own observation, kept him for long years amongst the most regular and assiduous attendants at our meetings. Happily, before he was taken from us, he had introduced two sons to our fellowship; while we mourn his loss, we cherish the hope that Dr Richard Erskine Young will successfully continue through another generation the faithful and fruitful service to God and man that were rendered in their time by his father and his grandfather.

A Corresponding Fellow.

In the year 1857 the name of a young Sheffield doctor was added to the list of our Corresponding Fellows, on the proposal of Sir James Simpson, seconded by Dr Moir. Dr J. H. Aveling, from the outset of his career, devoted himself to the study of obstetrics and gynecology, and in many ways he made valuable contributions to the advancement of the subjects that interest us here. It was the exhibition of an instrument constructed on the principle of the lithotrite which he had contrived for the safe division of the pedicles of intra-uterine polypi, that led to his adoption into our Society. He had an inventive mind, and made a suggestion of great and permanent value in the treatment of chronic inversion of the womb, when he showed the necessity of having a repositor constructed with curves adapted to the pelvic canal, which could allow of continuous elastic pressure being kept up on the displaced organ. The use of the instrument he introduced for this purpose gives better results than any other kind of treatment in some of these troublesome cases.

This same tendency led him to a careful study of the construction of the most important implement of the obstetrician's armamentarium, the most important, indeed, in the hands of the general practitioner,—I mean the midwifery forceps. His work on the curves of the forceps is a masterly production. The instrument he contrived, and which he used in practice, is scientifically constructed, and practically serviceable. It embodies all the elements requisite for safe grasp of the head in every part of the parturient canal, and for making traction along the axis; and, but for the introduction of the Tarnier forceps, which has the further advantage of furnishing a guide at every point for the line of traction, I do not doubt that Aveling's forceps would have taken possession of the field in Britain.

That paper of his on the forceps reveals another of his varied gifts,—his love, namely, for historical research, and his power of tracing inventions to their source; and it is with something of patriotic pride that he claims for England the discovery of the value of the various curves of the forceps. Thus he showed that Benjamin Pugh, of Chelmsford, used forceps with the pelvic curve seven years before the date at which Levret is usually credited with its introduction. The perineal curve, the first hint of a compensation curve, was originated by Dr Robert Wallace Johnston; and it was quite independently of the work of Hubert that he himself, in 1868, proposed the use of the forceps with the full handle-curve which could permit of proper axis-traction. This power of historical research is most distinctly seen in his interesting history of the Chamberlens, in which he unearths the secret of the first invention of the forceps, and traces it, with the highest degree of probability, to Peter, eldest son of the Huguenot William

Chamberlen, who fled from Paris with his family to escape the massacre of St Bartholomew in 1569. But his antiquarian pursuits were not confined within the domain of midwifery, for he published some interesting memorials of William Harvey, and he wrote a history of Roche Abbey. He took a deep interest, moreover, in the question of the proper training of midwives, and published a work on *English Midwives: their History and Prospects*, which is a mine of information regarding the women who in the past have made a name for themselves in this department, and contains valuable suggestions as to their proper training and registration.

There were other ways in which Aveling's literary and organising faculties enabled him to aid the advances and to play a not unimportant part in the general progress of obstetrics and gynecology. For he took a leading part in the establishment of the *Obstetrical Journal of Great Britain and Ireland*, of which he was the first editor, and which was the medium of collecting and diffusing much valuable information during the years of its publication. *The British Gynecological Journal* is in some sense the continuation of it, being the Journal of the British Gynecological Society, in the foundation of which Dr Aveling had a prominent place. When we remember, further, that in Sheffield, he had a hand in the foundation of the Jessop Hospital for Women, and that when he went to London he started a small hospital which has developed into the flourishing Chelsea Hospital for Women, we recognise that he was a man who played a worthy part among the obstetricians of his time, and whose name was an ornament to the roll of our Society.

One more memorial notice, and I have done.

The Father of Ovariotomy.

In 1882 our Society did itself a too long-delayed honour in adding the name of Charles Clay of Manchester to the list of its Honorary Fellows. Dr Clay had made for himself an honourable record through his long service as a lecturer on midwifery in Manchester and through the many contributions he had made to obstetrics and the diseases of women. But it is especially because of his boldness and success in the removal of diseased ovaries that he will be held in lasting remembrance, and that he has come to be spoken of in Britain as "The Father of Ovariotomy." The long war that was to eventuate in the establishment of ovariotomy among the justifiable operations of surgery came to a close in Edinburgh just thirty years ago. The story of that battle as it was fought on the floor of the Medico-Chirurgical Society was so graphically told by Dr G. W. Balfour in his Valedictory Address to that Society in 1883, that I dare not attempt to retail it now. But in the year that has witnessed the death of the foremost champion in the long drawn-out ovariotomy war—for Dr Clay died on the 19th of September last, in the 92nd year of his age—it is

becoming that we should try to realize what our profession and our common humanity owe to the man who took up abdominal section when it was a dreaded and discredited procedure, and wrought on and fought on, often amid opposition and abuse, but with gradually growing success, till younger hands took it up, and he lived to see it take the highest place among the proud achievements of modern surgery.

Lizars, disheartened by his own ill success and cowed by the denunciations of his surgical colleagues, had for many years ceased to open the abdomen, when in 1842 Clay began his ovarian career. For more than a decade he had the field almost entirely to himself. In January 1856 he sent to this Society a history of the result of sixty-nine cases of ovariotomy. Debates on that theme were tame with us here in comparison with the discussions that called out all the eloquence and enthusiasm alike of surgeons, obstetricians, and physicians in the sister Society. Perhaps because the obstetrician is so much in the habit of welcoming strangers, the obstetric mind is more hospitable to new suggestions and more ready to accept new ideas as to treatment than other minds. At any rate, Dr Clay's statistics were here received with respect and gratitude, and, as the minute-book shows, Dr Menzies and Dr Moir related cases illustrative of the dangers of first tappings. Now, these fatalities of first tappings were among the strongest arguments adduced for the necessity of having recourse to the more radical procedure. Sir James Simpson, who read Clay's communication, had for years been one of the most eager and effective advocates of the operation. He had ten years previously suggested to Clay the desirability of applying to his operation, which he had been in the habit of designating "peritoneal section," the now familiar name of ovariotomy, and year after year he discussed the subject before his class in a style that prepared most of his students to anticipate the coming triumph, and stimulated some of them to take a share in bringing it about. Even as early as November 1843 our minutes record that he made some remarks on the diagnosis of ovarian tumours and the results of the recent operations in England for the removal of the ovaries, stating that since October 1842 twelve cases of extirpation of the ovary had been recorded, of which only two had died; but that two deaths had occurred where the abdomen had been opened and no ovarian disease present. He thought that the sound would be helpful in the avoidance of diagnostic errors.

It is extremely difficult for a generation that is growing almost reckless in opening the abdominal cavity to realize the dread of the procedure that possessed the spirits of their predecessors. The fear was such that it led great surgeons not only to taboo the operation, but to denounce the operators. In the communication made to our Society, Clay could tell of 69 operations with 48 recoveries and 21 deaths. He indicated further that the mortality

had lessened with his growing experience. In the first 20 cases there had been 8 deaths = 1 in $2\frac{1}{2}$. In the second 20 there had been but 6 deaths = 1 in $3\frac{1}{3}$; and in the last 29 cases only 7 deaths = 1 in $4\frac{1}{7}$.

Yet in the November of that same year (1856), there was a long discussion in the Academy of Medicine in Paris on the treatment of ovarian tumours, continued through several sittings of the Academy, and the whole discussion turned upon the palliative treatment, or the conditions under which injections of iodine should be had recourse to with the expectation of obtaining cures not followed by relapse. Ovariotomy is for the most part ignored, and where the orators do refer to it, the great surgeons of the day speak of it only to dismiss it with scorn. Said Malgaigne, "There has been much talk of the extirpation of diseased ovaries, an operation which seems to me to be too radical, and of a nature to put the patients too absolutely beyond the chance of a relapse. Alleged statistics prove nothing; one knows the worth of statistics which collect all the successes and omit all the reverses." Cruveilhier did not think, though the operation had been frequently practised with success in England and America, "that this bold operation should be naturalised in France. Success," he said, "does not always justify rash undertakings." "In spite of statistics," said Huguier, "we repel it in a manner almost absolute;" and Velpeau declared that "extirpation of the ovaries was a frightful operation which ought to be proscribed even if the cures that had been announced were real." Cazeaux alone—now, Cazeaux was an obstetrician—said, "I cannot quit this tribune without entering a protest against the anathema launched by several against extirpation of the ovaries. Before being proscribed, it should be inquired into, and it has not been inquired into sufficiently."

About the same time one of the famous debates on the subject came off at a meeting of the Edinburgh Medico-Chirurgical Society, when Mr Edwards gave the history of a case in which he had operated and which had terminated fatally. On that occasion, Dr Matthews Duncan, the one obstetrican who here took rank among the opponents of ovariotomy, made a very able speech, the conclusion of which, however, was simply that "we were forced to resort to the opinions of great and wise surgeons—and they condemned the operation." One of our great and wise surgeons at that meeting, with what he admitted to be a certain malapropism, characterised *abdominal* surgery as *abominable* surgery; and another of them said to Dr Thomas Keith when he began his brilliant career as an ovariotomist a few years later, "Fellows like you should simply be handed over to Mr Maurice Lothian." And Maurice Lothian was the Procurator-Fiscal. The two were respectively Professor of Systematic and Professor of Clinical Surgery, much given to fighting with each other about everything else, and

having as their one common enemy ovariotomy and the ovariotomists. The splendid successes of Sir Spencer Wells in the intervening years were emboldening other operators and inducing surgical writers to give the operation a place in their text-books. But, as I said, it is only thirty years ago that the long ovariotomy war, begun, as we have seen, in 1843, came to an end in Edinburgh. The opposition to it began to die down when, in 1863, Dr Thomas Keith was able to lay before the Medico-Chirurgical Society the records of his first six cases. *The Medical Times and Gazette* of August 8th of that year has a humorous account of the meeting at which Keith read his paper, sent to it by its Scottish correspondent. It is in a quizzing mood that the correspondent says, "To you in London the operation and the subject are stale." For but a few months before, Dr Robert Lee had made a communication to the Royal Medical and Chirurgical Society in which he considered it "demonstrated that ovariotomy is an unjustifiable operation where the life of the patient is not in immediate danger, and where there is not a great probability of the life of the patient being saved by the removal of the disease." In the subsequent discussion he said, "He had recently witnessed the performance of the operation by Mr Spencer Wells, and a most horrible sight it certainly appeared. The bowels gushed out of the wound, reminding him of the fate of Judas Iscariot. Yet the patient was reported to have recovered, thus showing how very great an injury might be inflicted on the abdominal viscera without causing death, which he considered a striking physiological phenomenon." The Edinburgh correspondent was no doubt quite familiar with all these things that were being said and done in London when he wrote, "To you in London the operation and subject are stale; to us they are not. The last case," he continues, "brought before the Society was one by Edwards six years ago. Then every one was against the operation; now every one is for it. Dr Matthews Duncan said on this occasion that his mind could not conceive the possibility of successful ovariotomy, until Dr Keith, who lives in his own immediate neighbourhood, had '*brought it to his own door;*' all the cases of Clay, Brown, Wells, etc., had not entered his imperturbable and impassive mind. Dr Keith's 120-pounder had to be rolled up against his door in Charlotte Square before the portals of that stolid imagination could open to a recognised fact. But we do not believe Dr Duncan has such parochial ideas on professional subjects. However, in the meanwhile, the question of operating here being doubtful, there never having been a successful case in Scotland, except one done by an Englishman in Aberdeen, the one Keith quoted to his brother the words of a late eminent countrywoman who lived at Cawdor:—'*We* fail? Screw your courage to the sticking place, and we'll *not* fail. *When Duncan is asleep*—when (in chloroform) their drenched natures lie as in a death—what cannot *you* and *I* perform upon?'"

But if from this time forward the names of Wells and Keith take precedence of all others in the progress of ovariotomy, let us not forget the work of their brave forerunner. Dutoit, in a tractate published at Würzburg in 1864, *Die Ovariotomie in England, Deutschland, und Frankreich*, after referring to the successes of Safford Lee, Tyler Smith, Baker Brown, and Spencer Wells, says, "Der eigentliche Heros der Ovariotomie ist aber *Charles Clay* in Manchester." On two occasions it was my good fortune to see this hero of ovariotomy. The first time was in the autumn of 1857, when at a large gathering of the profession in the house of Sir James Simpson, after Professor Faye of Stockholm had given an address on syphilisation, Dr Clay gave an address on ovariotomy, of which a report is given in the October number of the *Monthly Medical Journal*. The other time was in the autumn of last year, when the sturdy old nonagenarian, making a tour in Scotland, called upon me, and I had the satisfaction of assuring him that the successive generations of Edinburgh students were still made acquainted with his name and fame. I know you all count him worthy of your admiration, and agree with me in placing, as it were, a memorial wreath on his honoured tomb.

Prospect.

Gentlemen, if I have occupied your time in this Valedictory Address in dealing with men and events of the past, it is not because I think that the former times were better than these. On the contrary, I believe there never was a better time. On every hand in our department real solid progress is made, alike in the obtaining of truer scientific views of the processes with which we have to deal, and in the devising of surer methods of relieving the patients who appeal to us for aid. I am proud to think that the volumes of our own Transactions give proof that our Society has Fellows well able to advance this progress both in the scientific and practical directions. I am glad of the peace that prevails and has always prevailed within our walls, and that is born, not of apathy or listlessness, but of mutual good will and a common interest in our beneficent calling. And it gratifies me greatly that you have chosen as your next President Dr Freeland Barbour, who has already made such a brilliant record, and who is as capable as the most gifted of his predecessors of conducting the business of the Society with efficiency and dignity, and of winning for the office additional renown.

On the motion of *Dr Underhill* a cordial vote of thanks was given to Professor Simpson for his address.

Dr A. H. Freeland Barbour, the President-Elect, took the chair, and thanked the Fellows for the honour they had conferred upon him in electing him President.

2. ABSTRACT OF A NOTE ON THE ADMINISTRATION OF ORGANIC EXTRACTS.

By R. W. Felkin, M.D.

It is, I think, sometimes justifiable to communicate to this Society an incomplete piece of work. It is certainly more satisfactory to read a paper in which definite conclusions can be stated.

During the last eight months I have had occasion to employ organic extracts in the treatment of various patients, and although I have come to no definite opinion as to their permanent utility, I think it advisable to give the results I have hitherto obtained, the more so as I have had a considerable number of inquiries as to what preparations I use, the dose I have administered, etc.

First, with regard to the preparations used.—Messrs Duncan, Flockhart, & Co. have prepared for me brain and orchitic extracts, and they have also prepared me suppositories of orchitic extract. Messrs Burroughs, Wellcome, & Co. have made me tabloids of brain extract, and also suppositories of orchitic extract. The organic extracts I have used for hypodermic administration I obtained from Paris, but I shall not refer to their use in this paper. For, knowing the results which have been obtained by the administration of thyroid extracts by the mouth, I have in these cases preferred to avoid hypodermic injection, because, in the first place, it may be objected that the hypodermic injection of an organic extract may simply act as we know that injections of a solution of phosphate of soda and chloride of sodium act, and also because it may be said that the hypodermic injection of animal extracts is merely a new phase of suggestive therapeutics. I have avoided the possibility of either of these objections being raised, and for obvious reasons my patients have not known what substances were being employed in their treatment.

With regard to the dose.—This varies, of course, with the age and weight of the patient. I commence with ten minims of the liquid extract, and rapidly increase the dose to a drachm two or three times a day. I found that occasionally pretty sharp diarrhœa seemed to follow the larger doses, and also that the patients varied in respect to the time when it was advisable to administer the extract. Some took it well enough on an empty stomach, but in others it induced slight nausea, and I had to administer it during a meal. I did not find this objection in the administration of the tabloids; they have proved very satisfactory, and did not produce nausea, whether administered on an empty stomach or with food. I have also found that in some it is better to give a rectal injection of the extract at bedtime after the bowel has been cleansed by a simple enema. As, however, the injection was objected to by some of the patients, I have employed the extract in the form of suppositories or in the form of capsules;

the latter can be easily introduced, and have the advantage of being readily filled by the patient with the necessary dose. The orchitic extract I have invariably administered in this way.

With regard to the way in which these organic extracts act, I am not prepared at the present time to offer any opinion, but it is evident, from what we know of the administration of thyroid extracts in myxœdema, that they can act very powerfully. I believe, also, that organs such as the ovaries and the testicles possess the power of elaborating an internal secretion, as it is termed by Brown-Séquard, which is perhaps not absolutely necessary, but, at any rate, of importance to the organism.

I will now very briefly relate a few of the cases in which I have administered cerebral extract. Full details of the cases I hope to publish later on, when sufficient time has elapsed for an opinion to be formed as to the permanence of the good results obtained.

The first case in which I administered cerebral extract was that of a boy, J. G., aged 8, suffering from pseudo-hypertrophic paralysis. I commenced to treat him on the 21st of February 1893. At that time he could hardly crawl upstairs. He took the extract regularly until the 24th of July, when he was certainly brighter; could walk up and down stairs easily; he took his food better; he could walk for a mile and a half with comparative ease; his muscles were certainly far firmer than at the commencement of the treatment, and there was a marked diminution in the size of his calves and buttocks. It was very noticeable with how much greater ease he managed to rise from the floor. He went to the country in July, and for some reason his mother omitted to give him his medicine, and the place did not seem to suit him, and when I saw him on October 2nd he had distinctly fallen back. I am now giving him the orchitic extract as recommended by Brown-Séquard.

The next case I may refer to is one of nervous exhaustion and irritability of temper. Mrs W., aged 45, married; height, 5 ft. 6 in.; weight, 7 st. 2 lbs.; has been suffering for the last two or three years from loss of memory, pain in her legs, and inability to walk far without extreme fatigue; she is very nervous and hypersensitive, is pale and markedly anæmic. She has been under various doctors in the south, and has taken large quantities of iron and arsenic, a course of bromide, and on two occasions a course of strychnine. She commenced to take brain extract on April 5th, half a drachm twice daily, and this she continued until the 25th of July. At this time she was better in every way. She weighed 9 st., could walk five or six miles with ease, was much brighter, took three good meals a day, and said she felt a different creature. Since this note she has only taken two doses of brain extract a week, and she is going on satisfactorily.

Mr D. was sent to me from England on September 20th, suffering from the effects of a long bout of drinking. I at once put him on

drachm doses of cerebral extract. The good effect has been very marked. I have never seen such a rapid improvement in any patient of the kind. Of course it must be allowed that his abstention from alcohol has aided in his improvement; but yet his appetite improved almost immediately; he sleeps eight hours every night, has gained strength rapidly, and the change in his appearance is most satisfactory. Although for months he had been suffering from attacks of diarrhœa, his bowels are now quite regular, and although he appeared to be on the verge of an attack of delirium tremens, he took a complete turn for the better after a week's treatment, and still remains well.

I have used the brain extract in three cases of epilepsy, with marked success. One case was that of a man aged 34. He had suffered from epilepsy since he was 17, and first came under my care at Richmond Street Dispensary some years ago. I lost sight of him until last March, when he came to see me again. He had not improved, and was still having three or four moderately severe fits every week, and he was practically living on bromide of potassium. I commenced giving him brain extract by the mouth, and in a fortnight he had improved. He only had one fit in the second week, and since that time he has been continuously taking either the brain extract or the tabloids, and he has only had one fit during the last four months.

The next case I tried with the tabloids was that of a girl aged 17. She had suffered for eighteen months, and rarely passed a day without a fit. She could not take the brain extract, but the tabloids have suited her admirably, and the fits have been reduced to one in a week and one in ten days.

Another case was that of a boy aged 16. He suffered very severely from epileptic fits, at the same time being exceedingly ill-tempered and violent. His mental development was very faulty. The brain extract worked a very great change in him; the fits were reduced in number, and he became obedient and good-tempered. I got Dr Gibson to take this boy into the Royal Infirmary. The excitement of coming into town threw him back, and it was necessary to circumcise him, which did not improve matters for the time, but since his return home he has been doing very well. Of course, in this case it may be said that the circumcision caused the improvement; but this would be hardly fair, as there was such a marked improvement before the operation was performed.

Apart from these cases, I have administered the brain extract and tabloids with success in three cases of inveterate insomnia, in two of severe debility and general want of nerve power, and in four cases of what may be called general neurasthenia, in which one would otherwise have prescribed the Weir-Mitchell treatment. I do not wish to give details of these cases at present, as the treatment has been too recent for any definite opinion to be formed. Still I

think my cases have been so successful that I am anxious for others to try this plan of treatment.

I now turn to another part of the subject altogether. I believe that I have hit upon a plan of treatment which will be of considerable use in a different class of cases. The cases I refer to are those of patients suffering from ovarian disease or other nervous disease connected with the genital system.

Before mentioning any cases or referring more specially to the method of employing the orchitic extract—for that is what I have used—I want to make a few very brief remarks as to how I came to take an interest in this matter.

I think that it is quite possible sometimes to obtain hints as to treatment from primitive people. In 1879 I had the opportunity of becoming acquainted with many of the habits and customs of Central African natives, and also of conversing with Easterns of various races. It might be interesting, but I doubt if it would be profitable, were I to detail the exact practices which I met with. It is sufficient to say that on various occasions I found that human semen was administered to debilitated patients with wonderful success.

Naturally this made some impression upon me. I also found that the natives were in the habit of devouring the raw testicles of animals, owing to their supposed strengthening properties; and still further, that during the slave wars it was the custom for both Arabs and natives to perform the most disgusting acts of cannibalism with a view to obtaining increased prowess.

Knowing this, it has occurred to me that Brown-Séquard is quite right in stating that the internal organs do not only elaborate a fluid for excretion, but also a product which is necessary for the mental and physical well-being of the individual. From this I have been led to imagine, first, that the ovary elaborates a product which is necessary for the well-being of the woman; and, secondly, that the orchitic fluid is not solely intended to fertilize the female, but that it also contains a substance which, although not necessary, is beneficial. It may be that it allays the orgasm in the female, amongst other uses.

If these ideas be true, they explain certain diseased or morbid states which one meets with in practice, and they also, I think, give a hint as to how we may deal with such unhappy cases when we do meet with them. Certain experiments which I have been able to make seem to show that I am right, and I mention them because I am anxious that my ideas should have a more extended trial than it is possible for me to give them. I have no hospital ward in which to make experiments, and in dispensary work one does not meet with such cases very frequently, and one needs to have a very large practice to gain sufficient scope for setting the matter at rest in the only practicable way, namely, by trial.

The first class of cases to which I will refer for a moment is that in which the ovaries have been removed. Now, this operation is performed for two reasons—either because the ovaries or tubes are themselves diseased, or because it is hoped to cure hysteria or some other such-like nervous condition. To take the latter cause first. As far as I am able to read, the operation does not appear to be very successful, and even in the most successful hands the patient is exposed to a risk. Now, I fancy that were either cerebral extract or orchitic extract administered, in a considerable number of these cases cure would result; and in two cases, one of which was grave hysteria, the other mental instability and nymphomania, I have, I believe, been successful in inducing cure. In both cases orchitic suppositories were employed. In another case of a somewhat similar character, namely, where in commencing puberty in a girl aged 17, a delicate, anæmic, highly excitable girl, the onset of the menstrual function was accompanied by intense excitability and loss of self-control, which almost rendered restraint in an asylum necessary, cerebral extract acted very beneficially.

In those cases where the ovaries have been removed for disease certain evils may ensue. For my purpose I need only mention grave melancholia and hyperchondriasis. I think that the administration of an organic extract may be of considerable service. At any rate in one case at the beginning of this year, in which a patient, who had had her ovaries removed, suffered from severe melancholia, it was successful; and in another case which I attended more recently the results were somewhat curious. A. P., aged 22, came to me suffering from depression, accompanied by thoughts of suicide, and an alteration in her voice. She had been to various throat specialists on this account, and had been told by her employer that she must give up her position unless she was soon cured. Her ovaries had been removed eighteen months ago. She recovered well from the operation, and went on satisfactorily for more than a year, and it was only at the beginning of this year that her trouble commenced. I hardly thought I should be able to do any good in this case, but it was a chance not to be missed. She took a month's holiday. I put her upon large doses of cerebral extract, which she seemed to appreciate; at any rate she gained weight, rather more than a stone in a month; she lost all her gloomy fears, and her voice has returned to its former pitch.

There are other cases to which I could refer, but I will hold them over for a time.

None can be aware more than I, that in order to prove my points I ought to have a far larger mass of detail to lay before this Society. It is my misfortune that this is not the case. Yet the success I have had in my few cases leads me to hope that others will be enabled to supply my deficiencies.

Professor Simpson said the satisfactory results that had followed the treatment of myxœdema with thyroid extract had naturally given a great impulse to the idea that other organic extracts might be serviceable in the treatment of various diseases. He (Prof. Simpson) had no doubt that Dr Felkin was correct in supposing that the sexual glands had a function in the economy additional to that of producing ova in the female and seminal fluid in the male. The late Professor Laycock used to point out, for instance, the influence of disease in the ovaries in producing changes in the skin, and though it might be difficult to explain the connexion between the nutritive processes in these glands and the rest of the body, it was matter now of frequent observation that removal of the ovaries was attended with notable changes in various parts of the organism. It was not easy to see how a brain extract should have an effect in counteracting the ill results of ovarian absence, but at least the observations that Dr Felkin had made were interesting, and he hoped he would be encouraged to make further study and experiments in this direction.

Dr George Hunter remarked that the first employment of organic extracts was recorded by Dr Brown-Séquard when he experimented on himself with testicular juice, which he stated produced in the senile the feelings of rejuvenescence. He would like to ask if Dr Felkin could suggest an explanation as to how these extracts produced their therapeutic effects. Being organic, the reputed good effects of the cerebral extracts, for example, could not be due to phosphates or other mineral constituents; and it was rather difficult to understand how in the chemistry of digestion they were not either split up into inert and excrementitious substances, and so rendered valueless in tissue metabolism. Cases had been quoted of such widely differing diseases as epilepsy, cerebral irritation, and pseudo-hypertrophic paralysis, not to mention alcoholism, being, for the time being, cured; but taking into consideration some of the more recently advanced opinions regarding the pathology of the first-named complaint, viz., degeneration and vacuolation of one of the layers of pyramidal cortical cells, it was difficult to understand how cure could be brought about by the means referred to. Then, again, as regards glandular organs, the inference one might draw was that in treating a hepatic disorder—biliary obstruction, for example—all that was necessary for its successful treatment was the exhibition of fresh liver extract. While therapeutic reasoning of this kind seemed to him open to the risk of eventuating in routine and rather slipshod practice, he thought the Society was much indebted to Dr Felkin for bringing under its notice such an original and suggestive paper; and that the success which had in his hands followed the treatment advocated was the best justification of its employment.

Dr Milne Murray was of opinion that the observations brought before the Society by Dr Felkin were of much interest at the

present time, and he hoped Dr Felkin would continue his experiments as occasion offered. While sympathising with Dr Hunter's desire for an explanation of the chemical process which allowed the extracts to be taken into the digestive canal, and to mingle with the various secretions there without apparently impairing their efficiency, he thought we were a long way yet from such an explanation, and that it was by no means necessary for us to wait until such was forthcoming. It was sufficient to justify continued clinical experiment that we had obtained the marvellous results which have already been recorded from the use of thyroid extract in myxœdema, notwithstanding that no adequate explanation was forthcoming of how the active principle of the extract taken into the alimentary canal was able to reach and affect in the extraordinary way it did the myxœdematous tissue distributed over the body. Dr Felkin's results were most interesting, and the precautions he had taken seemed to him (Dr Murray) to exclude, as far as possible, the element of suggestion.

Dr Church thought that Dr Felkin, in his valuable paper, had not referred sufficiently to the *ferments* which in many of the organic extracts were known to be the active principles of therapeutic value. This was so in the extract of the thyroid gland, used in myxœdema. The same was true regarding the pancreatic ferment recently discovered to be of so much value in the cure of some forms of glycosuria, due to disease of the pancreas. This being so, if the brain extract was useful in the nervous diseases in which Dr Felkin had used it apparently so successfully, was its value due to any ferment, as in the other organic extracts, affecting the whole constitution of the blood, or to what was its efficacy due? There seemed to be a great future in this treatment by organic remedies.

Dr J. W. Ballantyne thought that the Fellows were indebted to Dr Felkin for laying before them such novel and extraordinary therapeutic means and results. Even at the present time, when the thyroid gland was being administered in cases of myxœdema, sporadic cretinism, and psoriasis, and the pituitary gland in acromegaly, it still betokened not a little originality and courage on the part of Dr Felkin that he had not only conceived but carried into practice the methods of treatment that he had just described. Dr Ballantyne thought that one might be pardoned if at first one felt somewhat sceptical as to the explanation of the good results of his treatment which Dr Felkin gave; it seemed very difficult to imagine how brain extract and testicular juice could act in the way indicated. At the same time, and in view of the recent extraordinary successes attending the administration of thyroids in myxœdema, it was necessary to beware lest the sceptical attitude should lead us into denying simply what we could not understand.

Dr Felkin said he was indebted to the Society for the kind way in which they had received his paper. He was glad of criticism,

and his chief object in contributing the paper had been to elicit the opinion of the Fellows of the Society as to whether he were working on the right lines or not. With regard to Dr Hunter's criticism, he was much obliged for Dr Murray's answer to it, as he was afraid that at present it was impossible to state with any accuracy how the substance acted. In reply to Dr James Ritchie, he said that every precaution was taken to prevent the patients knowing what they were taking, and it was quite easy to arrange with the chemist who supplied the extracts or suppositories to refrain from labelling them with more than the instructions for use.

III. NOTE OF A CASE OF VESICO-RECTAL FISTULA.

By N. T. Brewis, M.B., F.R.C.P.E., Lecturer on Gynæcology, Edinburgh Medical School; Gynæcologist, New Town Dispensary, etc.

Abnormal communications between the bladder and rectum are so extremely rare in women, that I think I am justified in recording a case of this nature which occurred in my practice lately. Unfortunately the patient was a woman of deficient mental power, so that it was with difficulty that a consistent history was obtained from her. For the following notes I am indebted to my clinical assistant, Dr Robert Riddell.

Mrs R., æt. 33, residing at Freuchie, Fifeshire, was recommended to me by Dr Mackay of Falkland. She had been married eight years, had had no children or miscarriages, and was admitted to the Cambridge Street Home for Women on 9th October 1893, complaining of passing her urine per rectum.

Her illness was of five years' duration. Four years ago Dr Mackay sent her to the Royal Infirmary, but she refused to stay, and since then her condition has become gradually worse.

Menstruation began at the age of 15, and was regular till her present illness. It lasts three days and is of the 28-day type. Sometimes it is very profuse, and is always unaccompanied by pain. Now she is irregular as to time. She was last unwell on October 6th, and on that occasion saw very little. When she micturates she says more comes by the bowel than by the proper channel, and during the act there is great bearing-down pain. She complains also of diarrhœa, and after defæcating feels very weak and exhausted. Her general health has been good until the present trouble. She is one of a family of fourteen, of whom thirteen are alive and healthy. Her mother has had her elbow-joint excised, probably for tubercular disease. The patient was examined under chloroform, when the uterus was found to be retroverted, fixed, and pushed over to the left by a firm swelling, which occupied the right half of the pelvis. The bladder contained about two drachms of urine mixed with particles of fæcal matter. The sound passed into the viscus 2½ inches in the right, while in the left it passed

nearly its whole length. A finger introduced into the rectum recognised a band of thickened cellular tissue surrounding the rectum at a point about a finger's length from the anus.

Immediately beyond this constricted portion the sound was felt coming through a valvular slit in the bowel. The ampulla was widely distended with urine. The finger could be passed through the above-mentioned opening in the bowel, and could feel the bared surface of a firm tumour, apparently situated between the layers of the right broad ligament. The retroverted uterus was behind and to the left of the bowel perforation.

Two interesting points are manifest in this case. The first is the apparent cause of the fistula. This, as far as can be ascertained from the imperfect history and from the physical signs, would indicate that an abscess had formed in connexion with the tumour in the cellular tissue, and that the pus had found its way simultaneously into the bladder and rectum. The fistulous tract was evidently extra-peritoneal, its course being from the left side of the bas-fond, past the left side of the cervix on to the rectum.

The second point of interest is the manner in which the ampulla of the rectum performed the office of a urinary reservoir. That the patient was able to retain urine in the rectum for hours at a time showed that the anal sphincter was equal to take in itself the duties of the neck of the bladder.

In cases of injury to the vesical neck, where there has been extensive sloughing, and where obliteration of the vagina has not been sufficient to prevent constant dribbling of urine, Baker-Brown and others have made an artificial recto-vaginal fistula, so as to transpose the function of the bladder to the rectum. Fritsch mentions two patients operated on in this way, who passed their urine through the anus without the least inconvenience.

With regard to treatment in Mrs R.'s case, it was my intention to open the bladder by the supra-pubic method, and close the mouth of the fistula by means of sutures, but the patient would consent to no operative interference.

Dr J. W. Ballantyne was of opinion that the case recorded by Dr Brewis was an unusually interesting, and, so far as he knew, a unique one. It seemed difficult to understand in what manner the vesico-rectal fistula had formed. It may have been, as Dr Brewis suggested, that an abscess burst simultaneously into both rectum and bladder, but he was inclined to think that it was more likely that an opening occurred first into the rectum, that this insufficiently drained the abscess, either because it was not situated at the most dependent part or on account of its valvular character, and that consequently the pus burrowed in another direction and found an exit through the bladder. It was also possible that there may have been two suppurative centres, one of which opened into the rectum and the other into the bladder, and that

these later became continuous with each other by the breaking down of the tissue between the two pus cavities. The extraordinary wandering of pus in the cellular tissue was well known, and Dr Ballantyne had recently read the notes of three cases by Skene in which the pus from a pelvic abscess passed upwards, burrowed under the diaphragm, and ultimately opened into a bronchus.

Professor Simpson thought Dr Brewis's case was very interesting, well recorded, and worthy of record. He had seen cases where pelvic abscesses opening both into bowel and bladder had led to the formation of fistulous tracks between. In a case he (Prof. Simpson) had under his care many years ago, such a communication had been established. It differed from Dr Brewis's rare case in that the fæcal matter came into the bladder, whilst there was no passage of urine into the bowel. It healed up under the application of nitrate of silver to the vaginal roof.

MEETING II.—DECEMBER 13, 1893.

Dr A. H. FREELAND BARBOUR, *President, in the Chair.*

I. The following gentlemen were duly elected Fellows of the Society:—Cuthbert Christy, M.B., C.M.; Robert Hutchison, M.B., C.M.; J. G. Cattanach, M.B., C.M.; George Elder, M.B., C.M.; A. M. Easterbrook, M.B., C.M.; and W. H. M'Kinlay, M.D.

II. *Dr N. T. Brewis* showed—(1.) AN EXAMPLE OF SUPPOSED TUBAL GESTATION, which he had removed from a patient three weeks ago.

History.—Mrs M'K., æt. 29, married nine years, had had two children, the younger seven years ago, was admitted into Cambridge Street Home for Women on 4th November 1893, complaining of constantly recurring spasmodic pains in the right iliac region. From the birth of her last child till July of this year the patient menstruated, without pain, regularly every month, the discharge lasting a week. In August and September the periods recurred at the expected time and were painless, but the discharge on each occasion was much less than usual. A day or two after the flow in September had ceased she was seized with violent pains of a spasmodic character in the right side of the lower abdomen. The pains lasted one or two hours at a time, then they disappeared for a variable period, sometimes one or two days, but only to recur with increased severity. These pains continued at intervals till her operation. In the last week of October, exactly a month after her previous period, menstruation recurred. On this occasion she passed, along with a large quantity of clotted blood, an entire cast of the uterine cavity. On *physical examination* the vagina and the vaginal portion of the cervix were found to be soft. The uterus

was slightly enlarged and displaced to the left. Through the right lateral fornix, in the position of the right Fallopian tube, an irregularly shaped semi-fluctuating mass larger than a duck's egg was felt.

From the history and the physical examination it was inferred that an extra-uterine gestation existed in the right Fallopian tube, and as the swelling felt tense, it was thought that its early removal was desirable. The abdomen was opened on November 20th. The peritoneum was thick and vascular. The omentum was adherent to the parietal peritoneum, and had to be ligatured and divided. In the abdominal cavity was a considerable quantity of dark blood and a number of clots. The bowels were matted together. The tube was adherent to bladder, uterus, and omentum by thick, vascular, soft adhesions. After freeing the tube from surrounding attachments it was ligatured close to the uterus, and the ovary and greater part of the tube removed. The fimbriated extremity was closed and curved over the ovary. The outer two-thirds of the tube were distended by a tense swelling, and, along with the ovary, were adherent to the posterior surface of the broad ligament and uterus. Their separation from these parts left a broad raw bleeding surface, the oozing of which was in a great measure stopped by the application of an iron styptic. The abdomen was flushed with water, and a drainage-tube introduced. The patient recovered without a bad symptom.

This case presented a number of interesting points, one or two of which were briefly alluded to. When the abdomen was opened a quantity of dark blood was found in it, and yet the swelling was practically intact. The presence of the blood was evidently the cause of the matting of the abdominal contents. From two points on the posterior surface of the swelling a gentle oozing of blood was noticed at the time of the operation. This gradual escape of blood and its effect upon the surrounding parts was evidently an effort on the part of Nature preparatory to complete rupture, which would sooner or later take place, to confine the hæmorrhage to a limited space in the abdominal cavity. It explained also how a rupture might take place without the patient experiencing more than severe pain and faintness at the time of its occurrence.

On looking at a section of the swelling it was noted that the dilated tube was closed at its outer end and filled with coagulated blood, and that the greater part of the blood had escaped from the tube and was lying between the layers of the broad ligament. Though rupture had not taken place, it might be concluded from the specimen that if the case had been left alone rupture would have taken place into the peritoneal cavity. It therefore shows that the tube may first rupture into the broad ligament, and subsequently into the abdominal cavity.

The spasmodic colicky nature of the pains were probably due to the escape of blood and the increased distention from time to

time. With regard to the nature of the swelling, there was little doubt that further examination would show that it was a case of extra-uterine gestation. The fœtus was not to be seen in the section, but it might be found after being further cut into. The absence of the fœtus, however, did not disprove gestation, as it might have been absorbed. The cast of the entire cavity of the uterus, showing well-marked decidual cells, might in itself be considered pathognomonic.

(2.) DECIDUAL CAST OF UTERINE CAVITY from the case of supposed tubal gestation above mentioned.

(3.) MICROSCOPIC SECTIONS OF DECIDUAL CASTS from two cases of extra-uterine gestation, and from one case of so-called "membranous dysmenorrhœa."

(4.) A SMALL OVARIAN TUMOUR which, before removal, presented some of the clinical features of movable kidney.

(5.) Two examples of PYOSALPINX, one of HÆMATOSALPINX, and one of CYSTIC DISEASE OF THE OVARY.

(6.) A CYST removed from the right side of the lower third of the vagina.

III. *Dr Haultain* showed a CYLLOSOMATOUS FŒTUS, with well-marked male pseudo-hermaphroditism; and also a FŒTUS on which there were well-marked signs of adhesions of the amnion, causing anencephalons and amputation of many phalanges on both hands. Several of the fingers were united together in a webbed fashion.

IV. *Dr J. W. Ballantyne* exhibited—(1.) A specimen of the FŒTUS COMPRESSUS OR PAPYRACEUS, which Dr Herbert C. Male had kindly sent to him from Essex. The following were the clinical notes of the case:—The mother, a ix.-para, æt. 40, 5 ft. 3 in. in height, was of good constitution, of active and temperate habits, and was situated in favourable surroundings. She had had no serious illnesses, and was in no way deformed. Menstruation was regular in type, lasting about six days. She was married when 21. There was no affection of uterus or annexa. She had had eight previous pregnancies, two of which had resulted in the birth of twins (ten children); the labours had in many of these been normal, but twice forceps were required; and the first pair of twins and one of the second pair presented by the breech. During the present pregnancy (the ninth) she was greatly troubled with sickness, and felt more languid and ill than in any previous gestation. When about two and a half months pregnant she was seized, without known cause, by violent sickness, which lasted for twelve hours, but was not accompanied by uterine pain or discharge. She had no shock or fall during her pregnancy, and the fœtal movements were felt strongly throughout. The confinement was at the full time, and normal; a healthy, well-formed living male child was born first (it was the largest at birth of all her children), then the placenta and membranes were expelled; and on the outer surface

of the latter, near to the placental border, Dr Male noticed a fatty thickening with a movable substance inside it. On making an incision into it, Dr Male found the little flattened fœtus with a small quantity of liquor amnii. The amount of liquor amnii accompanying the normal twin was moderate. The progress of the puerperium was interrupted on the ninth day by an attack of influenza, lasting for four or five days. The father was a healthy man, of good constitution and habits. With regard to the occurrence of plural births in the family history, the only case that was known was that of the father's grandmother, who had once had twins. The flattened fœtus lay in a flexed attitude in a sac on the outer surface of the membranes of the normal twin. Its sac measured 7 cms. in length by 5 cms. in breadth, and on the outer surface was a degenerated fatty-looking placental area, measuring 10 cms. by 8 cms. The thickness of the placenta was only 3 mms., and it had a yellowish colour and a firm consistence. Inside the sac the fœtus was seen with the umbilical cord wound once round its body; the face looked directly backwards over the shoulder, whilst the limbs were flexed on the anterior surface of the trunk; in its flexed attitude the fœtus measured 5·5 cms. in length by 3 cms. in breadth, and had a thickness of only 2 or 3 mms. The umbilical cord was 11 cms. long, was thin but not twisted, and was inserted near the end of the sac in which the head of the fœtus was situated. The eyes of the fœtus could be recognised as dark spots, and the ribs could be seen shining through the skin. It is quite possible, judging from the size of the fœtus, that its death and subsequent flattening may have occurred synchronously with the severe attack of vomiting between the second and third months of pregnancy.

(2.) *Photographs* of the external and internal appearances of an ANENCEPHALIC FŒTUS, which had occurred in the practice of Dr E. Coleman Moore, who had kindly furnished him with the following clinical notes:—The mother, 42 years old, a vii.-para, is slightly built but well developed, is 5 ft. 3 in. in height, and lives in comfortable circumstances. She had whooping-cough, measles, and small-pox when a child, but since then has been healthy, save for some dyspepsia. She is not deformed in any way; menstruation began when 15½ years old, is regular in type and habit, but is accompanied by considerable pain. She has always suffered more or less from leucorrhœa. She was married when 21. The present was her seventh pregnancy. Of the six previous gestations, the fourth ended in a miscarriage at the third or fourth month; but the others went to the full time. All the children were boys, and are all alive now, aged 19, 16, 13, 6, and 3 years respectively. In all these pregnancies she enjoyed good health; but in the present one (her seventh) she was well up to the third month, and then got a severe fright (saw a neighbour with her face bruised and covered with blood), which quite upset her. Fœtal movements were felt

at the four and a half months, and about that time a sharp pain began in her right side, which continued, along with indigestion, sickness, and faintness, till the confinement. About a fortnight before delivery it was noticed that the abdomen was much more distended than usual and somewhat pendulous. Her previous labours had, with one exception (forceps), all been easy and natural. In the present confinement chloroform was given as soon as it was recognised that there was some abnormality about the head. No great traction was needed, although there was some delay in the birth of the shoulders. There was an enormous amount of liquor amnii. The puerperium was normal up to the fifth day, when it was interrupted by an attack of influenza. The patient, however, recovered from this, and is now rapidly gaining strength. The placenta, cord, and membranes appeared to be normal, but were not specially examined. The father always had good health, save for an attack of rheumatic fever three years ago. The mother has one sister, who is the mother of twelve healthy children, and three brothers living, but one brother died at the age of 8 from "water in the head." The fœtus, a female, had a total length of 39 cms., whilst the head and trunk measured 24 cms. The body and limbs were well developed and normal, but the head and neck showed the usual anencephalic deformity. (Photograph shown.) There was spina bifida in the cervical region. There was a large amount of adipose tissue. There was a groove indicating the position of the neck anteriorly. The head was slightly bent towards the left side, and therefore, when a mesial vertical frozen section was made, it was found that in the upper part of the head the saw had passed to the right of the middle line through the right eye. The length of the spinal column (following the curves) was 19 cms. The section showed that all the vertebral bodies were present, but that the spines and arches of the upper five cervical were wanting (constituting the spina bifida). The cervical part of the spine curved backwards and upwards beneath the basis cranii (the vault was quite absent), and so there was a marked concavity posteriorly in the cervical region. The dorsal spine was fairly straight, but the sacrum showed a greater inclination backwards than is usual. The parts in the neck showed some displacement: the hyoid bone lay in front of, and in contact with, the upper part of the larynx, and opposite to the seventh cervical vertebra (instead of the third cervical, as is normal); the larynx was also at a much lower level than normal, lying opposite to the seventh cervical and the first and second dorsal vertebræ; the thyroid gland lay at the level of the second dorsal body, and was in contact with the upper border of the thymus gland; and the sternum, which contained one centre of ossification, had its upper border at the level of the third dorsal vertebra. The heart, however, had its usual vertical extent, lying opposite to the fifth, sixth, seventh, eighth, and upper part of the

ninth dorsal vertebræ. The pylorus was at the level of the first lumbar vertebra. The cæcum, ascending and transverse colon, were enormously distended with dark-green meconium; the rest of the intestine was narrow. The other viscera seemed normal; the uterus was markedly anteverted. The spinal cord existed below the level of the sixth cervical vertebra.

V. NOTE ON A CASE OF DOUBLE RUPTURE OF THE MEMBRANES.

By A. H. Freeland Barbour, M.D.

The following case, in which one portion of the membranes presented and ruptured, with prolapse of the cord through the rent, and then the fœtus was born through another rent, is unique.

To Dr Elder, who had charge of the case at the Maternity Hospital, I am indebted for the following facts:—The patient was admitted with a history of hæmorrhage requiring plugging of the vagina. There was nothing worthy of note in her former confinements, and she was now six and a half months gone. During two days in hospital there was oozing, which became considerable, though there were no gushes of blood. The cervix dilated slowly, and a loop of cord was felt through the unruptured membranes. An attempt at bipolar version was made, but was unsuccessful, and the cervix was then dilated with Barnes's bag No. 1. On removal of the bag there was a considerable gush of blood, and the membranes protruded at the vulva. They were ruptured, and a loop of cord prolapsed, which pulsated feebly. A second bag was introduced to continue the dilatation of the cervix. On its removal a bag was placed in the vagina.

It was at this stage that I saw the case. On removing the bag I found the head descending, with a loop of cord beside it. I delivered it rapidly with forceps. On delivering the membranes I found this curious condition:—The cord, passing from the fœtus through the rent (*a*) through which the fœtus had been born, hung down as a congested loop through another rent (*b*) in the membranes. The rent through which the cord prolapsed is at the opposite pole of the ovum from the placenta; that through which the fœtus was born is between it and the placental margin.

I have not been able to find a case of double rupture of such an extensive nature. Ribemont's interesting paper on Rupture of the Membranes deals with experiments made to determine the force required to rupture them; and the plates that he gives of the various forms of rupture, and which Tarnier reproduces in his *Traité de l'Art des Accouchements*, represents only the various forms of rupture produced experimentally. Budin, in his *Clinique Obstétricale*, refers to double rupture as explaining the cases of gradual flowing away of the liquor amnii. A minute rupture takes place high up, from

which the liquor amnii drains away while the presenting bag of membranes persists. I have examined the membranes carefully on many occasions, and have once found a minute rupture such as Budin describes, lying an inch or so from the larger rent.

This case is, however, of a different nature: and the explanation of it is not quite clear. The placenta must have been situated low down in the uterus, as the rent in the membranes by which the fœtus passed extends up to it. I do not think it was prævia, as the margin of the placenta is intact.

The protrusion of the unruptured membranes at the vulva implies that they had been stripped off the whole interior of the uterus. When the membranes rupture at the usual time, they are only stripped off the lower segment of the uterus during the first and second stages of labour. This was first demonstrated by Chiari's section, and confirmed by the section made by Dr Webster and myself. But when the membranes descend unruptured to the vulva, they must be stripped off the whole of the interior of the uterus. Hence the part of the membranes ruptured in this case was not the part opposite to the os internum, but at the opposite pole from the placenta. The fact that the fœtus was not born through this rent, but ruptured the membranes at a second place between the original rent and the placenta, was probably due to the Barnes's bag displacing the membranes so as to bring a new portion over the os internum.

Prof. Simpson thought the case an interesting one from its rarity, and well worthy of being recorded. He had had an opportunity of seeing the patient and the preparation at the time, and could not understand how the double rupture of the membranes had been produced, unless there had been some displacement during the manipulations with the hydrostatic dilator. The record of this case would lead to more careful observation as to the conditions under which double rupture of the membranes may occur.

Dr Barbour replied.

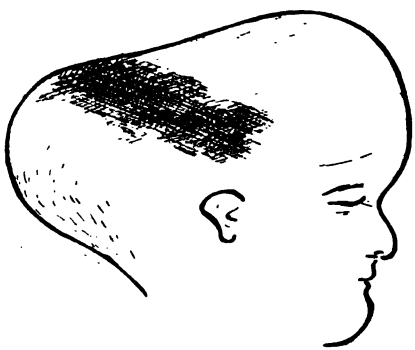
VI. NOTE ON A CASE OF UNUSUAL POSITION OF THE PROMONTORY MARK ON THE FŒTAL HEAD.

By A. H. Freeland Barbour, M.D.

In our *Transactions* for 1878–79, Prof. Simpson reported an interesting case of a promontory mark in an unusual position, viz., a vertical furrow over the right half of the frontal bone The case I now record is in another unusual position,—a horizontal depression above the ear (see Figure). The cases form an inter-

esting comparison, because they both occurred in the same form of pelvis.

The usual form of the promontory mark is a vertical furrow in front of the ear. Its position and direction are definite and characteristic. The promontory mark is specially related to the flat ricketty pelvis, and is definite and characteristic, because that pelvis has its definite and characteristic mechanism. The head lies transverse and partially extended, and passes the contracted brim by a substitution of the shorter bi-temporal for the longer bi-parietal diameter; so that the broader part of the head passes to one side of the promontory, where there is room for it. And though the ricketty mechanism seems at first sight to be the opposite of the justo-minor one, inasmuch as extension takes the place of flexion, the opposition is only apparent. They can be reduced to a common formula: in both there is substitution of a shorter for a longer diameter. What makes the difference is that



in the one mechanism you are dealing with the transverse diameter of the head, in the other with the antero-posterior; and that this substitution implies extension in the one case and flexion in the other. The ricketty mechanism is therefore definite, its *rationale* being the same as that of the justo-minor, and the promontory mark is in a definite place, at the posterior end of that diameter which engaged in the conjugate at the end of the bi-temporal diameter. A vertical furrow here is the characteristic promontory mark.

What is the explanation of the unusual position of the mark in this case? It is above the ear instead of in front, and runs backwards instead of upwards.

The pelvis was not a flat ricketty, but a flat justo-minor,—that is, a justo-minor with a projecting promontory. The measurements were—inter-spinous, 9¼ inches; inter-cristal, 10¼ inches; external conjugate, 7½ inches; diagonal conjugate, 4¼ inches; in fact, it was a pelvis similar to the one I show you here. The shortened diameters

of the false pelvis show that it was justo-minor. The external conjugate would not lead one to suspect that the internal would be contracted; but it was so distinctly, showing that while an external conjugate below 7½ inches means an internal conjugate of less than 4 inches, the complementary statement is not true: with 7½ inches external conjugate the internal was below 3¾ inches. And it is noteworthy that with a diagonal of 4¼ inches, the true conjugate was less than 3¾ inches,—that is, that you must sometimes subtract more than half an inch in a justo-minor pelvis. That is the case with this pelvis I show you; and it was so in this patient. The distinctness with which you could feel the promontory, the difficulty of the labour (granting that it was a brow case), and the promontory mark, taken all together, prove this.

The peculiar position of the mark is due to the fact of its being a brow presentation. In Dr Elder's record of the case he says:—"Patient was admitted to hospital at eight o'clock with history that membranes had ruptured at noon. She was brought by Dr Haig Ferguson, who said that from a cursory examination he suspected a contracted pelvis. She had been chloroformed, and after admission was kept under the influence of it. Head was found presenting, anterior fontanelle in centre, head lying transversely; to the left could be felt orbital ridges, eyes, and nose; to the right, the sagittal suture, but posterior fontanelle could not be reached. The anterior parietal bone was firmly pressed against symphysis in front, and at lower level than posterior. Behind, there was plenty of room in the lower part of the pelvis; though, above, the promontory of the sacrum was felt to be jutting forwards to a very considerable extent. The hand on the abdomen could feel the occiput on the right side above the brim. The head was fixed firmly in the pelvis, and attempts to flex or rotate it were useless. Forceps were applied somewhat obliquely, and traction made—left blade over anterior temporal; right, over posterior parietal.

"The head came down some distance, and seemed to rotate a little; face towards sacrum. The forceps were now practically useless with the grasp they had, and so they were taken off, and hopes were entertained that spontaneous rotation might occur. After an hour, however, the head was found as before, and firmly fixed, so forceps were again applied, and after much difficulty (half an hour's efforts) the head was born, coming down to the outlet in the transverse diameter. After the head was born the face rotated to the front, a little to the left, and then the shoulders and rest of child was born.

"There was very marked moulding of the head, much ecchymosis on forehead where the caput is well marked. Vertex flattened. Occiput projecting backward. On the right parietal bone was a very marked depression, just where the eminence should be, about 2 inches long. 'Child cried very feebly at first, and required

vigorous stimulation to bring it well round.' This tracing of the head will give a fair idea of its peculiar shape and of the position of the mark. The diameters are—O.M. 5½ inches, O.F. 5¼ inches, S.O.B. 4¼ inches, Bi-P. 4 inches, Bi-T. 3⅞ inches."

The reason for the position of the furrow is obviously the brow-presentation; and I think the brow-presentation is due to the projecting promontory's preventing the flexion of the head, which would have been the natural mechanism for a simple justo-minor pelvis.

The treatment was, I think, the best, if not the only one. Had it been a flat pelvis with a roomy transverse, and the case seen at an earlier period, the question of turning would have come up; for there is no doubt that while the axis-traction forceps have made it possible to deliver, and deliver easily, in cases where the old forceps would have failed, the principle of our treatment is always to follow the natural mechanism. Now, a turned head passes the brim in precisely the same way as the presenting head does; and you get the additional force required for delivery by traction from below with pressure from above, while the head engages with its base, or narrowest part of the wedge, coming first. In this case, however, though the promontory was projecting, the pelvis was justo-minor, and forceps was therefore indicated.

VII. ON DILATATION OF THE CERVIX BY CHAMPETIER DE RIBES'S BAG.

By F. W. N. Haultain, M.D., F.R.C.P.E., Lecturer on Midwifery, Edinburgh School of Medicine.

Champetier de Ribes's bag, the instrument whose use it is my intention to bring before you, has been fully and carefully described in the *Annales de Gynécologie*, 1888, and has been used in France by Pinard and others with great success. For some reason or other its adoption in this country has been very limited, and here in Edinburgh I am not aware of it ever having been used at all,—a conviction which is strongly supported by the absolute want of knowledge of its existence displayed by the instrument-makers when I inquired about one eighteen months ago.

After some practical experience of its use, I have found it to prove a most useful and reliable obstetric appliance, and therefore take this opportunity of bringing it under your notice, so that perhaps I may induce some to give it the trial which I feel certain it deserves and will fully repay.

The instrument simply consists in a silk bag covered by india-rubber, which, when distended, assumes the definite shape of an inverted cone, measuring at its base about 3½ inches in diameter.

For the purpose of introducing the dilator, a pair of separable

forceps have been devised, which are of great value when the initial dilatation is not greater than the diameter of a shilling; but when larger than this, the introduction of the bag can be most conveniently performed by means of a pair of ordinary curved vaginal forceps.

The not inconsiderable dimensions of the collapsed bag make it necessary that a certain amount of initial dilatation requires to be present before introduction can be attempted, the amount necessary being slightly larger than the diameter of a shilling; or, in other words, the os requires to admit one finger fairly easily.

Before introduction the bag should be crumpled into as small a compass as possible and thoroughly oiled. It is then grasped by the application forceps and slowly pushed through the cervix till at least a half has passed the os internum.

The forceps are now loosened, and partial distention (by means of warm water pumped in by an ordinary Higginson syringe) commenced; the forceps are now withdrawn and full distention completed, this being estimated by a known number of syringefuls being necessary.

As the bag distends it becomes accommodated to the surrounding parts and adapted to the existing degree of cervical dilatation existing, its curved shape allowing it easily to lie on the axis of the pelvic brim.

From the large size of the bag, the pressure on the presenting part must necessarily be considerable, and thus tend to displacement,—a disadvantage which will be considered later.

Before, however, considering in detail the advantages and disadvantages of the instrument from a theoretical standpoint, I will shortly relate three cases of abnormal labour in which I used it with marked benefit.

CASE I.—Primipara, with flat non-rachitic pelvis; C. V. $3\frac{1}{2}$; membranes ruptured for two days; os uteri admits easily one finger; pains at first fitful and irregular, but for the last three hours stronger and more regular; fœtal head in transverse of pelvis movable and extended above the brim. Bag introduced comparatively easily, and in three hours expelled through cervix; forceps were now applied and delivery completed.

CASE II.—Mrs M., multipara. Membranes ruptured one and a half hour; os uteri size of florin; presentation R.M.P., with cord prolapsed and pulsating; pains strong. The cord was returned by postural method, but prolapsed again immediately. I now returned the cord again and introduced Champetier's bag, which was driven through cervix in one and a half hour; version was then at once performed, and a living child born.

CASE III.—Multipara; sixth child; vertex R.O.P.; membranes

ruptured four days; pains irregular, weak, and painful; os uteri slightly less than florin, the edges being thick, hard, and irregular. Dilator introduced, immediately after which a few strong pains occurred, but no appreciable progress could be noted after three hours. Intermittent tractions on the bag were now attempted, and considerable advancement in dilatation occurred; but as the patient became fretful, I put her deeply under chloroform and assisted dilatation with the fingers, the distended bag forming a most excellent point of resistance for this manœuvre. In half an hour the os was fully dilated, and subsequent delivery by forceps easily accomplished.

As a dilator the bag seems to be formed on scientific principles, as from its shape it closely corresponds with the normal bag of forewaters, for which it forms a most excellent substitute, as I have practically proved on more than one occasion.

But as a simple substitute for the normal membranes its benefits as a dilator are by no means exhausted, because when rapid and more forcible dilatation is required it is of great service in forming a most efficient point of resistance to the finger in performing digital dilatation.

Further, by making traction on the bag considerable assistance can be given to feeble uterine contractions, and even dilatation attained where they are entirely absent.

Although the main function of the instrument is as a dilator, it must undoubtedly act beneficially in cases where the membranes have been long ruptured, by preventing compression of the soft parts between the presenting head and the pelvis, through forming a basis upon which the fœtal head rests. This action upon the presenting part where exaggerated, although forming one of the stated objections to the use of the bag, must be looked upon in some cases as of distinct value, as is well exemplified in Case II., where compression of the cord was thus avoided.

To discourse fully upon the various conditions in which this instrument may be indicated is of course entirely beyond the scope of this paper; but there are some special indications which, I think, are worthy of special notice.

First, as an inducer of premature labour the bag undoubtedly owes its existence, and in this operation it has been very largely employed in France by Pinard and others, who have fully discussed its merits.

The statistics show that in 40 cases, in 23 the child was born in from six to twelve hours; in 7, from twelve to twenty-four; in 10, from twenty-four to forty-eight. These, if compared with similar statistics compiled by Leopold, which show over eighty hours as the average duration required for expulsion by Krause's catheterization method, are at once striking and convincing, especially when it is known that the risks to the mother and

child are in no way increased. Naturally, before introduction a slight amount of dilatation is required. This in multiparæ can easily be performed by the finger, but in primiparæ requires more energetic measures by means of tents, or Hegar's and other dilators.

In the introduction of the bag in these cases it is quite unnecessary that the membranes be ruptured, but it seems to me that rupture of the membranes must at all times be safer, as separation of the placenta and hæmorrhage would otherwise tend to result. By rupture of the membranes, on the other hand, no harm can be done, and the liquor amnii is prevented from escaping, through the plugging of the cervix by the dilator, till the os is fully dilated.

In abnormal labour its indications are manifold, but its adoption would be specially valuable in—

1. Accidental hæmorrhage. Here the membranes can be ruptured and at the same time an efficient substitute employed, by means of which rapid dilatation can be attained.

2. In contracted pelves of minor degree. Here usually the membranes rupture early, and the head is prevented from descending to form a dilator for the cervix, but, resting on the brim, compresses the intervening soft parts.

By the introduction of the dilator not only have we an efficient substitute for the dilating bag of forewaters, but a distinct body to prevent the head from pressing injuriously.

3. In shoulder presentations with ruptured membranes and partially dilated cervix, with prolapse of the arm.

Here, unless severe and prolonged impaction is present, one can usually replace the arm; and I can think of no more rational method of treatment, where immediate version is denied to us, than introducing this dilator, thus at the same time preventing impaction and hastening dilatation, to allow of subsequent internal version.

4. In cases of prolapsus funis where the cord can be replaced and subsequent pressure upon it prevented till full dilatation of the cervix allows of rapid delivery by whatever means thought expedient. (Case II.)

Doubtless we have had before us an instrument of similar characteristics in the Barnes's fiddle-shaped hydrostatic dilators, but Champetier's bag seems to me a distinct improvement on these.

1. In that it assumes a definite unchangeable shape. Barnes's, on the other hand, from their india-rubber composition become easily moulded and ballooned in an irregular manner, which renders them frequently inefficacious.

2. From the strong nature of Champetier's bag it can be made to form an excellent point of resistance for rapid and more forcible dilatation by the finger.

3. When once introduced all further trouble is avoided, while with Barnes's various sizes have successively to be adopted.

4. If on introduction in inducing labour the membranes be ruptured, Champetier's dilator retains the liquor amnii till full dilatation is accomplished, and subsequent manipulations are easy, while with Barnes's bag the liquor amnii must escape when one bag is substituted by another.

In thus strongly advocating the benefits of this form of dilator, I cannot, on the other hand, abstain from considering its disadvantages and dangers, if such there be. In so doing, it cannot be forgotten that the great disadvantage of the instrument is its large size vertically, by which on distention it must necessarily displace, to some extent, the presenting part. This is usually no doubt but trifling, and can generally be corrected by external manipulation, but it seems to me a disadvantage which could by some means be corrected,—as, for instance, by making the base of the bag concave instead of convex. This, however, I must leave to the inventive genius of some one more qualified than myself in such matters.

As regards any special danger in using the dilator, the only one which suggests itself strongly to my mind is the introduction of the bag in cases where after prolonged labour the lower uterine segment has become much thinned; here its introduction may be the means of causing rupture of the uterus, otherwise its employment under ordinary antiseptic precautions seems at all times safe.

From the very limited experience of the practical working of the instrument which I have had, it may seem premature to have thus dilated so freely upon it; but the little experience has so convinced me of its advantages as a valuable and scientific obstetric appliance, that I have taken this early opportunity of bringing it more prominently before your notice, so that perhaps some other Fellows of the Society may be induced to try it, and thus more rapidly extend its practical considerations in a manner which must necessarily be acquired but too slowly by one's self.

Prof. Simpson said all the Fellows were indebted to Dr Haultain for the demonstration he had made of the value of Champetier de Ribes's dilator. He (Prof. Simpson) had sometimes been impressed by the experience of Pinard, and also of some English and American obstetricians, in the use of this implement; but had somehow contented himself hitherto with the use of the more familiar hydrostatic dilators. It was clear, however, that this presents advantages which will probably lead to its displacing the Barnes's and other bags; and it was interesting to see that Dr Ellis of Bath had already got one of the new dilators constructed with modifications which were probably not so important as the modification suggested by Dr Haultain, of making the upper end concave.

Whilst showing the advantages of the dilator, Dr Haultain had wisely indicated some of the drawbacks to its use.

Dr Barbour thought the difference between this dilator and that of Barnes's was that this one caused the dilatation to be produced largely by uterine contractions forcing the wedge downwards, while Barnes's actually stretched the cervix. He thought that the material of which it was made was its great advantage. He demurred, however, from the use of it or Barnes's bag for accidental hæmorrhage, as Dr Haultain had proposed. He thought the use of any instrument which plugged the cervix and concealed the bleeding was to be deprecated.

Dr Haultain replied.

VIII. THE RELATION OF INFLUENZA TO GYNECOLOGICAL, OBSTETRICAL, AND PEDIATRIC CASES.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E.

This is now the fifth successive winter in which influenza has come as a most unwelcome visitor to our shores; and although it would seem to have attacked the male sex with greater virulence and with more frequently fatal effect than the female, it has by no means spared the latter. To the Fellows of this Society the effect of influenza upon menstruation, pregnancy, labour, and the puerperium cannot fail to be of interest; and many of us must also have had occasion to note its occurrence in infants and children, and its influence as a complication of some gynecological affections. It is not with the intention of adding much to what is already known upon this subject, or of giving the results of the observation of an unusually large number of cases, that I have brought forward this communication; it is rather with the view of starting a discussion upon this most interesting topic, and of eliciting from the Fellows details of their experience and practice.

During the last three years there have been several noteworthy contributions to our knowledge regarding influenza in its relation to midwifery and diseases of women. Gottschalk (*Centr. f. Gyn.*, xiv. p. 41, 1890; and xvi. p. 49, 1892), Rudolph Müller (*Centr. f. Gyn.*, xiv. p. 297, 1890), Amann (*Münchener Med. Woch.*, Nos. 9 and 10, 1890), and Leclerc (Inaug. Diss., Strasburg, 1891), in Germany; A. Mijnlieff (*Nederl. tijdschr. v. Geneeskunde*, vol. i., 1890), in Holland; Trossat (*Lyon Med.*, March 30, 1890), and Vinay (*Arch. de Tocologie*, xix. pp. 365 and 417, 1892), in France; and Addinsell (*Brit. Med. Journ.*, July 22, 1893), in England, have all written on this subject. Further, a discussion in which many well-known German obstetricians and gynecologists (*e.g.*, Sänger, Hennig, Hertzsch, etc.) joined, took place at a meeting of the

Obstetrical Society of Leipzig (*Centr. f. Gyn.*, xiv. p. 619, 1890); and finally, it will be remembered that Felkin read an interesting paper on "The Influence of Influenza upon Women" before this Society in December 1891 (*Edin. Obstet. Trans.*, xvii. p. 49). Since Felkin's communication was discussed we must all have seen many cases of influenza in pregnant and parturient women, and it has therefore seemed to me that the subject might with profit be reconsidered. The present paper is intended to be suggestive rather than exhaustive.

I. Influenza and Gynecological Cases.

a. Menstruation.—In two cases reported by Felkin, the occurrence of an attack of influenza would seem to have hastened the first appearance of the menses; one patient was ten years old, the other was twelve years and three months. I have, with one doubtful exception in a girl of eleven, seen no case resembling these. Further, it seems probable that the discharge in these instances was not truly menstrual; but Dr Felkin may, perhaps, be able to clear up this matter by telling us whether the red discharge has in his patients recurred at monthly intervals or not. Mijnlieff reports a case in which a sharp attack of influenza determined the first appearance of the menses, whether prematurely or not I am unable to say.

It is also doubtful whether we can regard as truly menstrual the red discharge which occurred synchronously with an attack of influenza in one of Felkin's cases, a woman of 49, whose menopause had taken place five years previously. Here, again, the later history might give an indication of the nature of the phenomenon.

Gottschalk, Mijnlieff, and Biermer (quoted by Gottschalk) have noted the fact that influenza may cause the appearance of a red vaginal discharge in patients with amenorrhœa. In one of Gottschalk's cases the uterine appendages had been removed for disease, and a premature menopause had followed; but the occurrence of influenza brought about a copious blood-loss. I have no personal experience of such cases; but perhaps some of our laparotomists may throw some light upon this subject.

Most writers have noted that when influenza attacks a woman at the time when her menstrual flow is due, the blood-loss is greater and the period lasts longer. I have seen several instances of this, and I may add that as a general rule the menstruation is accompanied by much pain and by an irritable state of the bladder. The intense sacralgia which occurs in such cases may be due partly to the influenza and partly to the menstruation.

By far the most common menstrual irregularity that is met with in connexion with influenza is metrorrhagia. This has been noted

by Gottschalk, Felkin, Müller, Hennig, and others. An intermenstrual red discharge begins on the first or second day of the disorder, and lasts for five or six days. The patient usually expresses her surprise at becoming "unwell" again before her proper time. I have seen a large number of such cases, and have noted in connexion with them that the occurrence of the red discharge did not prevent the return of the menstrual flow at her proper time; the patients were "unwell twice in the same month." Both Gottschalk and R. Müller observed that when metrorrhagia was present the uterus was enlarged (1 to 1·5 cm., as determined by the sound) and softer than normal; it had, according to the former writer, a consistence very like that found in pregnancy. The ovaries were not affected in their cases; but Felkin was of opinion that ovarian irritation was the most important cause of the menstrual irregularities in his patients. It was noted by Müller that hydrastis canadensis, hot douches, and ergot (in the usual dose) had no effect in checking these hæmorrhages. I did not find it necessary to employ astringent remedies in any of my cases, so cannot express an opinion upon this point.

With regard to the cause of these red vaginal discharges in influenza, it seems most probable that they are due to acute endometritis, and are therefore similar in origin to the hæmorrhages from the genitals met with in scarlet fever, typhoid, etc. Felkin, however, gives weight to ovarian irritation as the determining factor, and Mijnlieff notes in addition to the endometritis theory another possible explanation. According to this the specific pathogenic germs of influenza, acting upon the respiratory and digestive mucous surfaces, set up reflexly vasomotor disturbances which lead to hæmorrhages from various organs, including the uterus; the germs also may yield a kind of toxine which acts directly on the vasomotor system.

I have found no mention made of leucorrhœa due to influenza; but in one of my cases the malady was followed by the development of a very tedious and persistent white discharge, caused apparently by chronic endometritis. It is possible that the acute endometritis which causes the hæmorrhage may become chronic, and so lead to leucorrhœa.

In one or other of the ways above-mentioned, influenza acts upon menstruation in many patients, but not in all, for some would appear to pass through the attack without any such developments. Whether or not menstruation has any effect in determining the onset of influenza must, to my mind, be left an open question. Brakenridge (*Edin. Med. Chir. Trans.*, ix. p. 124), however, would seem to answer in the affirmative, for he says that "the tendency of the disease to attack women about the menstrual period was in many cases a very noticeable fact."

b. Diseases of the Generative Organs.—We have now to ask the question whether influenza, besides increasing the menstrual

flow and setting up metrorrhagia, leads to any structural changes in the pelvis, or influences the progress of already existing lesions.

Gottschalk related three cases in which parametritis followed influenza; in two of these the patients had never before had cellulitis, and all the other exciting causes of the disorder could be excluded, and in the third the inflammatory exudation took place in the position of an old parametic effusion. I have not met with any cases of pelvic cellulitis in connexion with influenza; but I have seen one in which a hæmatocele developed. The patient had an attack of typical influenza, but had no metrorrhagia with it; about a week later intense abdominal pain occurred, and the per vaginam examination revealed a soft swelling situated in the left broad ligament. There were no signs of inflammation then, or at any later period, and in a fortnight metrorrhagia set in and continued, notwithstanding treatment, for nearly three months. The patient was kept in bed during all this time, and made a complete but very gradual recovery. No trace of the hæmatocele could be felt at the conclusion of the illness. This case occurred in the winter of 1889-90, and it is a curious coincidence that the patient's sister, who lives in England, had recently a similar experience. She was attacked by influenza in the early spring of the present year (1893), and at the time when her menstrual flow ought to have appeared, suddenly developed intense abdominal pain. The pain persisted, and her medical attendant, a specialist in gynecology, found on examination a large elastic swelling lying behind and to the left side of the uterus. This he diagnosed as a hæmatocele, and treated expectantly. The patient progressed favourably for a time, but imprudently exerted herself too much and brought on a return of the internal hæmorrhage, and is still an invalid. In both these cases the internal bleeding would seem to have taken the place of the usual influenzic metrorrhagia, and in both instances the patient was married, but sterile.

With regard to the influence of influenza upon the growth of pelvic tumours, Leclerc reported nine cases (2 subserous myomata, 4 ovarian cystomata, 2 ovarian carcinomata, and 1 widespread cancer of the pelvic organs) in which he believed that the fever caused a very rapid increase in the size of the neoplasms. I cannot say that I have been able to trace any such influence in any of the cases under my charge, although I have carefully watched several patients with fibroid growths through moderately severe attacks of influenza; in fact, in one case I thought I was able to detect some shrivelling of the myomatous mass. Leclerc also noted a case in which he believed that influenza hastened the development of general peritoneal tuberculosis. In a case which I was able to watch, the cervix was removed for cancer; some months afterwards the patient took influenza, which she said was exactly the same as the dengue from which she had suffered in India; severe pelvic

pain set in after the influenza, and the cancer returned in the right broad ligament, but did not develop more quickly than usual. She died about two years after the operation.

II. Influenza and Obstetric Cases.

a. Pregnancy.—It is certain that pregnancy confers on the individual no immunity from influenza; but whether its occurrence in the pregnant state leads to abortion so frequently as Felkin's cases seem to show, must, I think, be regarded as doubtful. I certainly have seen few miscarriages which I could ascribe to influenza; but possibly I may have been more fortunate in this respect than my brother practitioners. Gottschalk and Müller both saw two cases and Mijnlieff saw one, and Trossat several, in which the gestation was interrupted by influenza; and Amann observed six in which the fœtus *in utero* died and was expelled some weeks later.

Chambrelent (*Gaz. hebd. sc. méd. de Bordeaux*, xiv. p. 195, 1893) also noted the intra-uterine death of the fœtus at the eighth month in a patient suffering from influenza; but in this case the malady was complicated by a severe attack of diarrhœa. In the discussion that followed the reading of Chambrelent's paper, Moussos expressed his belief that influenza very often led to abortion and premature labour, whilst Hirigoyen, on the other hand, stated that the health reports of Bordeaux for the year showed a very small number of premature births. When abortion does occur, it may possibly be due to a morbid condition of the decidua (hæmorrhagic endometritis), such as Slaviansky noted in connexion with cholera, or to general microbic blood-poisoning, or to death of the fœtus or embryo from intra-uterine influenza. It is, however, certain that many pregnant women take influenza without aborting, and doubtless the difference in opinion expressed by various authors on this point may be due to differences in the severity of the attack, and to the presence or absence of serious pulmonary and cardiac complications (as in some of Vinay's cases).

b. Labour.—In a few cases I have seen an attack of influenza coincide with the occurrence of labour at the full time; in one of these forceps were required for the weakness of the uterine and abdominal explusive powers, in another there was considerable bleeding in the third stage, and in another there was alarming post-partum hæmorrhage. In other cases the labour does not seem to be seriously affected by the influenza. In my opinion a simple uncomplicated attack of influenza will most commonly delay labour by weakening the expulsive efforts, and have no further injurious influence.

c. Puerperium.—Influenza occurring during the puerperium may at first sight be confounded with septic puerperal fever; but the differential diagnosis is not difficult. The absence of any

special symptoms referable to the uterus and annexa, the persistence of the lochia, the absence of the temperature curve of puerperal fever, and the presence of the distinctive symptoms of influenza (coryza, bronchitis, cephalalgia, pain in the back, depression, and weakness) will usually enable us to distinguish at once between the two conditions. In a case which I saw about a fortnight ago, all these distinguishing features were well marked. Possibly the absence of pathogenic germs from the lochial discharge in influenza might be used as a confirmatory test. Puerperal influenza has sometimes proved fatal, although I have not personally seen such a case. Thus Sänger noted a case of sudden death from heart failure in the fourth week after delivery in a weakly woman suffering from influenza and double pneumonia, and Hertzsch observed a case in which a phthisical patient suffering from grave pneumonia and influenza died on the fourth day post-partum.

d. Lactation.—I have not found it necessary to order the suspension of lactation in any of my cases, although in one instance I supplemented it with artificial feeding; but it would, of course, be necessary to do so if the influenza were of a grave type, and especially if it were complicated by serious pulmonary or cardiac affections. Vinay, from his experience, comes to a very similar conclusion.

III. Influenza and Pediatric Cases.

Since the beginning of the present epidemic of influenza, some four years ago, several important papers on this disease as it occurs in infancy and childhood have appeared, including those of Strassmann (*Zeitschr. f. Geb. und Gyn.*, xix. Heft 1), Carstens (*Jahrb. für Kinderheilk.*, xxxi. p. 312), Flesch (*Jahrb. für Kinderheilk.*, xxxi. p. 442), Kormann (*Wein. Med. Blätter*, Nos. 51 and 52, 1890), Townsend (*Archives of Pediatrics*, viii. p. 24, 1891), Pestalozza (*Archivio italiano de Pediatria*, x. p. 197, 1892), and Dauchez (*Rev. mens. des Mal. de l'Enfance*, July 1890).

a. In the New-Born Infant.—There is nothing inherently improbable in the statement that influenza may be congenital or may develop during the first days of life, for I have during the last twelve months reported cases of congenital measles and scarlet fever to this Society, and there is no reason why influenza in the mother should not in a similar way be transmitted to the fœtus *in utero*. Further, I have seen at least one case lately in which the diagnosis of congenital influenza was to my mind quite clear. The mother had an attack of influenza about a week or ten days before her confinement, and the fœtal heart-beats were more rapid than usual (148 per minute) on the day preceding labour, so that it was expected that the child would be a female, or at least a small male. When the infant was born it was found to be a large

boy, and for some time respiration could not be established on account of the large amount of mucus in the mouth and pharynx. In a few hours coryza was very evident, although the child had been warmly clothed at once. A large quantity of clear fluid passed from the nose. "Snuffles" was a prominent symptom, and there was marked restlessness and sleeplessness. There was no very evident lachrymation. There was, however, no diarrhœa, neither was there constipation; but the stools remained green after the usual time allowed for the expulsion of the meconium. The respiration and pulse-rate were quicker than normal, but the temperature was not much elevated. In about ten days the child was quite well.

Felkin reported one case possibly of the same kind. Townsend observed a male infant that had *in utero* a pulse-rate of 164, and sneezed violently immediately after birth; the temperature rose as high as 104°, the respiration was 100 to 140 per minute, and the pulse 200; there was much coughing and sneezing, but no signs of pneumonia, and recovery followed. The mother's confinement had occurred a week after the onset of an attack of influenza. Barton recorded a case of congenital influenza (*Brit. Med. Journ.*, vol. i. for 1890, p. 477), in which the infant died on the third day. Finally, Strassmann reported eight cases of influenza in infants varying from three to fourteen days old; there was death in one instance from pneumonia, and in all there was loss of weight, a subnormal temperature, and either diarrhœa or constipation.

b. In Infancy and Childhood.—In the discussion following the reading of Townsend's paper, several pediatrists (*e.g.*, Northrup, Fruitnight, Holt, and Dorning) expressed themselves as convinced of the rarity of the occurrence of influenza in early infancy, and stated that it rarely was met with before the second year of life; and Dauchez has dwelt upon the relative immunity from influenza which children enjoy. The last-named writer found that in 165 cases of influenza only 32 occurred in children, and that in them no deaths took place. He therefore emphasized the benign character of influenza in childhood, as well as its rarity. Now, whilst in the epidemic of 1889-90 and 1890-91, I cannot call to mind any cases of influenza in children occurring in my practice, I can remember many such in the visitations of this winter and last winter. It will be an interesting fact if it can be proved that in some years the disease has attacked the children and has left them free in others.

Kormann has pointed out that influenza in children has certain peculiarities. At the beginning, which in well-developed cases is usually as abrupt as in adults, fever and cerebral symptoms are of primary importance, but marked chills are rare. Convulsions and drowsiness are sometimes met with. In older children cephalalgia and pain in the back and limbs are complained of. Complica-

tions, such as bronchitis, pneumonia, caseation of the bronchial glands, acute miliary tuberculosis, and tubercular meningitis, are more common in infants than in adults (Dauchez states that complications are rare). Disorders of the nervous system are marked, and not uncommonly eruptions of an erythematous or urticarial nature are met with. In some instances gastro-intestinal troubles predominate. Carstens' conclusions were somewhat similar, but he thought that the disease usually began more gradually than in adults, that the cough was usually of a more or less convulsive character, and that constipation was rather more frequent than diarrhœa. These peculiarities are just the very ones that the study of other infectious fevers in children would lead us to expect.

Baginsky (*Arbeiten aus dem Kaiser-und Kaiserin-Friedrich-Kinderkrankenhause in Berlin*, Bd. ii. p. 5, 1893) states that he has met with four types of influenza in children—(1), uncomplicated; (2), with complications in respiratory system; (3), in nervous system; and (4), in gastro-intestinal system. I have personally been specially struck by the marked character of the pharyngeal, gastric, and cutaneous symptoms in the influenza of childhood. In certain instances the diagnosis from scarlet fever was rendered difficult by the presence of pharyngitis, a thickly coated tongue, and a scarlatiniform rash on the chest; but the after-history and the occurrence of other cases of influenza in the same house usually served to clear up what was doubtful. I have also seen patients who showed the typical nervous phenomena (cephalalgia, facial neuralgia, pain in the back, etc.), and others who exhibited rather the catarrhal type (coryza, lachrymation, bronchitis, etc.).

The general conclusion that I have drawn with regard to influenza in relation to gynecological, obstetrical, and pediatric cases is that it acts in a way very closely similar to that of any of the other fevers, such as scarlet, typhoid, measles, small-pox, etc., but of course its own distinctive characters must not be lost sight of in this generalization. I have said little or nothing about treatment, for it has not been my wish to enter into a discussion of influenza in general; but I may say that phenacetin in the early stages, and citrate of iron and ammonia in the later, have been my favourite drugs. With regard to any special gynecological or obstetrical interference, I have generally pursued an expectant plan, but have also, in some cases, used forceps to shorten labour, and have carefully watched for any alarming degree of hæmorrhage. So far, however, I have been so fortunate as not to have had any deaths from influenza.

The discussion on this paper was adjourned till a future meeting.

IX. STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY.

(SECOND SERIES.)

V. ALLANTOIDO-ANGIOPAGOUS TWINS—DESCRIPTION OF AN ANIDEAN FŒTUS.

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HAVING in a previous series of communications[1] considered in detail the members of the first great division of allantoido-angiopagous twins—those, namely, to which the general name *paracephalus* has been given—I ought now in logical sequence to take up the study of the *acephali*, which form the second division; but, as I have not myself been able yet to dissect a specimen of this kind, I shall leave them for the present and pass on to the consideration of the *amorphous* fœtuses, of which the third division is composed.

THE AMORPHOUS TWIN.

Definition.—Although Gurlt[2] was the first to employ the word *amorphous*, he did so in a sense that was much more restricted than that in which it is now used. For he defined the *fœtus amorphus* as one that had lost the animal form, and consisted solely of a rounded mass of fat, containing some rudimentary bones and being covered with skin. In the group of monsters thus defined by Gurlt, there were no traces whatever of limbs; but Isidore Geoffroy Saint-Hilaire discovered that fœtuses existed closely resembling those described by Gurlt, but differing from them in the possession of rudimentary limbs. Saint-Hilaire gave to them the name *mylacephali* (*i.e.*, acephali resembling uterine moles), whilst to the specimens defined and described by Gurlt he applied the term *anidean*. Saint-Hilaire's terminology at once took the place of Gurlt's, and was generally adopted by teratologists; but Taruffi[3] has clearly shown the expediency of having one word that might be used to include both the mylacephalic and the anidean fœtuses; and for this purpose he has revived Gurlt's old expression *amorphus*, and has regarded the mylacephali and the anideans as groups of the one large division of the amorphi. It must, however, be pointed out that Ahlfeld also grouped them among the amorphi, but without differentiating them into two separate varieties. I have adopted Taruffi's classification and definition, substituting, however, the word allantoido-angiopagous for omphalo-angiopagous. They may, therefore, be defined as

[1] *Edin. Obstet. Soc. Trans.*, vol. xviii. pp. 38, 94, 201, and 257, 1893.
[2] Gurlt (E. F.), *Lehrbuch der Path. Anat.*, vol. ii. p. 59, 1832.
[3] Taruffi (C.), *Storia della Teratologia*, vol. ii. p. 200, 1882.

allantoido-angiopagous twins, one of which is entirely deprived of the external form proper to the fœtus. Further, the variety amorphus is subdivided into the two groups *amorphus mylacephalus* and *amorphus anideus.*

As I have not personally dissected a specimen of the mylacephalic fœtus, and have only seen one—that described so well by Dr J. Halliday Croom at a recent meeting of this Society—I may here give an account of an example of the second group (anideus) which I have been able recently to examine.

Description of a Fœtus Amorphus Anideus.

For the anidean fœtus about to be described I am indebted to Dr Millard, who exhibited the specimen at the meeting of this Society held on January 11th, 1893.[1]

Clinical History.

All the details concerning this specimen that Dr Millard was able to obtain from the midwife in whose practice it occurred were the following:—The mother was 31 years of age, and the pregnancy which resulted in the birth of the monster was her fourth. Labour in this case occurred at the full time, and a normal female infant was born first in a natural way. It was followed in a short time by the placenta and the anidean fœtus, which were expelled together. The mother had never before had twins, and there was no record of plural conceptions in her family history. The female infant born along with the monstrous fœtus was alive at birth, still lives, and is healthy and strong. Unfortunately the midwife did not keep the placenta. The anideus itself was preserved in spirit for some months before it came into my hands for examination.

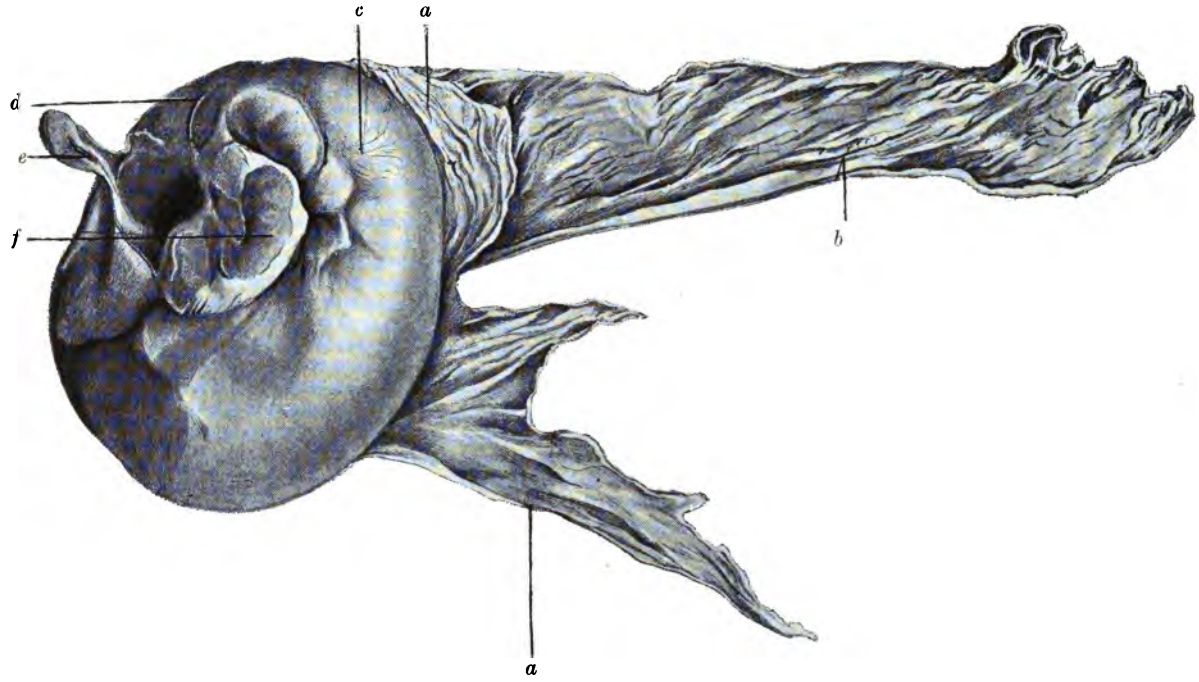
Morbid Anatomy.

External Appearances—

The specimen, when it came into my hands, had been kept for some months in spirit, and had, therefore, doubtless lost some of the appearances which it presented when in the fresh condition. It consisted of an ovate body about the size of the closed fist, completely enclosed in transparent membranes (Plate I.). At first sight its resemblance to a medium-sized subperitoneal or large submucous fibroid was considerable, and it had indeed been regarded as an intra-uterine myoma when first expelled; but close inspection revealed the presence of a few hairs situated near one of the ends of the mass, and plainly visible through the covering membrane. This fact, along with the short notes of the history

[1] *Edin. Obstet. Soc. Trans.*, vol. xviii. p. 68, 1893.

PLATE I.



of the specimen, enabled me to classify it as an example of the anidean variety of the fœtus amorphus.

The end of the mass on which the hairs were to be seen was provisionally regarded as the upper, for the hair-bearing area was considered to be the representative of the scalp. The mass was slightly flattened, and whilst one surface was perfectly smooth, the other exhibited certain irregularities in the form of elevations and depressions; the latter was looked upon as the anterior surface. The whole mass was surrounded by transparent membranes, and it will be convenient to describe these first, and thereafter to deal with the mass itself.

The membranes, which from their appearance and arrangement were evidently the chorion and amnion, completely surrounded the amorphous fœtus, and also stretched out from its left border in the form of two bands (*v.* Plate I.). The membrane covering the anterior surface was quite transparent, consisted of a single layer (amnion), and was freely movable save at the borders of the larger of the two projections situated on this surface of the mass, where it was firmly attached. On the posterior aspect the membrane was less transparent, was made up of two layers (amnion and chorion), and was freely movable over the underlying mass in the whole of its extent. The line along which the single layer of the anterior surface became continuous with the double layer of the posterior was especially well marked along the left border of the specimen, and to this line were attached the two free pieces of membrane above mentioned (Plate I., *a* and *b*). Of these, the one situated anteriorly consisted of a single layer, and was attached to the above-named line in its whole length; whilst the other, lying behind it, was made up of two folds, and was attached only to the upper part of the line. The former had a vertical measurement of 11 cms. In its upper portion it did not extend far outwards, measuring only 3 cms., but in its lower half it had an extent of 15 cms. when put upon the stretch; it had a somewhat ragged border, and looked as if it had been torn away; and it was possibly the chorionic covering of the anterior surface of the mass which had been displaced during delivery. The second piece of membrane, the double layer, had a much smaller vertical measurement, being attached only for a distance of about 4 cms. to the left border of the ovate mass: but it had a greater transverse measurement, reaching outwards, when put upon the stretch, to a distance of at least 17 cms.; it also had a somewhat ragged border, and was doubtless a portion of the membranes of the normal twin, torn away from the placenta.

On the anterior surface of the mass, and to the right side of the larger of the two projections (to be described immediately), was a third tag of membrane, which measured 3 cms. in length and 1 cm. in breadth. It was attached to the outer surface of the investing amnion, and was traversed by a bloodvessel which entered the

fœtus at its point of attachment, which may therefore be regarded as the umbilicus. A little above this tag of membrane another bloodvessel was seen, which ran on the surface of the investing membrane and pierced it at the right border of the larger projection a little above the point of entrance of the former vessel.

Quite at the lower end of the ovate mass was a fourth tag of membrane; this was the smallest of them all, and measured about 2·5 cms. in length by 1 cm. in breadth.

It is therefore evident that the fœtus had an amnion of its own, and it is extremely probable that the attached pieces of membrane were parts of the common chorion, and of the amnion of the normal twin.

The investing membranes were now divided and reflected. They were easily separated from the underlying mass at all points, except at the border of the larger projection on the anterior surface, where the single layer seemed to become continuous with the skin surface, and where the vessels entered. There was thus exposed to view an ovate body entirely covered with skin, upon which was a thin layer of a greasy substance, doubtless vernix caseosa. The ovate mass was the anidean fœtus (*vide* Plate II.). It had a vertical diameter of 10 cms. and a transverse (at its middle point) of 8 cms. Its vertical circumference was 26 cms., its transverse 24 cms. It weighed 26·0 grammes. The posterior surface was somewhat flattened, and presented no irregularities of any kind. The anterior surface, on the other hand, was covered with elevations and depressions. At a point about 1·5 cm. from the upper border was a projection measuring 3 cms. transversely, and about 1 cm. in a vertical direction. From its upper border a small tuft of hairs seemed to take origin. The hairs numbered little more than a dozen, were dark in colour, and had an individual length of not more than 1 cm. Immediately below the projection just described was a transverse furrow which separated it from the second and larger elevation. The furrow was about 1 cm. in depth, and on separating its edges it could be seen that it was lined to the bottom by amnion. The projection lying below the furrow, unlike that above it, had its vertical diameter greater than its transverse; the former measured 3·8 cms., and the latter about 2·5 cms. This elevation, which had a dusky red colour, was also marked off from the general surface of the body on the left side, and inferiorly by a very shallow groove; on the right side it sank abruptly to the surface, a distance of about 1·5 cms. It was along the right border of this projection that the two bloodvessels entered. At a point 2 cms. below the lower border of the above-described projection was a rounded area of skin about 8 mms. in diameter, marked off from the surrounding surface by a circular furrow. It had somewhat the appearance of an umbilical scar, and was possibly an indication of a very rudimentary limb.

PLATE II.

Internal Appearances—

The internal appearances of this amorphous fœtus were revealed, first, by a vertical section, and second, by means of dissection. The line of section was from above downwards and from behind forwards, and lay slightly to the left of the exact vertical mesial plane (*vide* Plate III.). After passing through a thick layer of soft tissues, the knife encountered a solid osseous mass occupying the centre of the fœtal ovoid; the section was therefore continued through this by means of the saw.

The appearances presented by the surface of the left half of the fœtus are represented in Plate III. It will be seen that on its posterior and anterior aspects, and at the lower end, the mass is covered by skin, under which lies a layer of subcutaneous tissue of varying depth (1·5 to 2 cms.). Proceeding from the surface inwards we meet with the following structures: first, the epidermic layer, apparently normal; second, the cutis, with numerous papillæ; third, the markedly œdematous subcutaneous stratum, consisting of areolar tissue with large meshes, and measuring from 1 to 1·2 cm. in thickness; fourth, the dense layer of adipose tissue divided up into lobules by bands of connective tissue fibres, and specially evident near the lower end of the fœtus; and fifth, an irregular layer of striped muscular fibres showing a kind of fatty degeneration, and lying in close contact with the osseous kernel. Scattered here and there throughout this tissue, and especially in the œdematous part of it, are numerous bloodvessels divided transversely and quite evident to the naked eye. There are also seen many white pinhead-sized spots, sebaceous glands, lying immediately below the cutis vera.

On the anterior aspect of the upper end of the fœtus the appearances are somewhat different. At this point the section passes through the larger of the two projections (already described) near to the entrance of the two bloodvessels. Into the deep fissure separating the upper border of this projection from the smaller elevation lying above it, the amnion is seen to pass, and it also forms a slight dip inwards at the lower border of the larger eminence. In this way an area of the surface is marked off, which is covered, not by skin, but by an amniotic layer. Under this covering is a somewhat irregular cavity whose walls are lined by a smooth serous-like membrane, and which contains some loops of intestine. The intestinal coils, which had a total length of probably 12 or 15 cms., terminate blindly at both ends, are in some instances attached to the wall of the cavity by a rudimentary mesentery, and contain a whitish porridgy meconium which lacks its typical green colour, doubtless on account of the absence of the liver. A small yellowish-white body, a little larger than a pinhead, was found lying near one of the coils of intestine in a separate sac, lined by a serous-like membrane. This may represent one of the abdomino-thoracic organs. There are, however, no

recognisable traces of heart, lungs, liver, spleen, kidneys, internal genital organs, or other viscera. It is therefore evident that the larger of the two projections on the anterior surface is a kind of spurious umbilical hernia. With regard to the upper and smaller prominence, it may be that it indicates a very rudimentary cephalic projection, for it carries a few hairs; but its internal appearances do not warrant more than a guess at its nature.

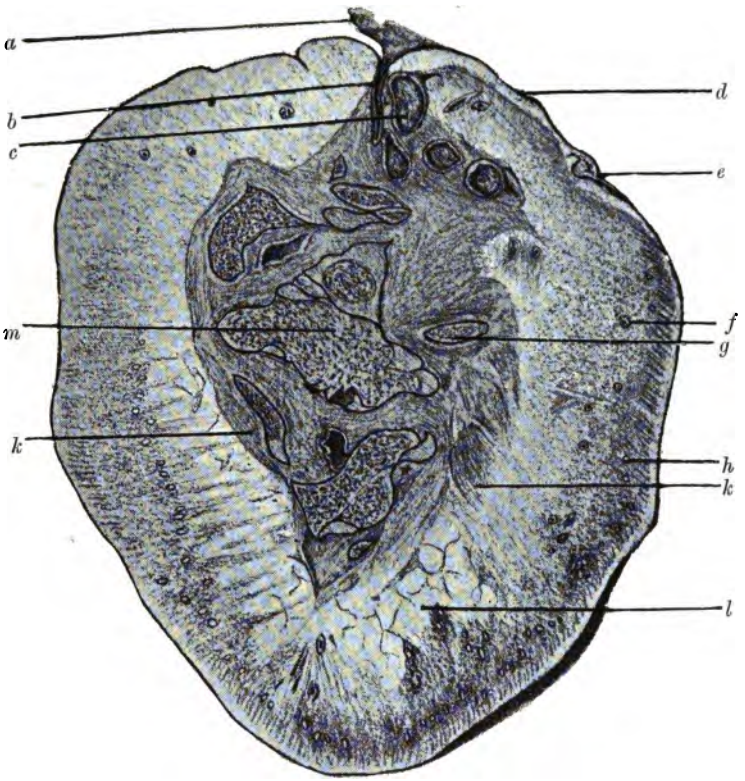
Sections were now made of the fœtal mass at different places, but appearances similar to those just described were everywhere found. A cut was made into the little mammillary eminence on the anterior surface near its lower end, but no bony or cartilaginous structure was found in it; it consisted simply of a nipple-like projection of skin and subcutaneous tissue, marked off by a circular groove. It is therefore impossible to say whether it indicated a very rudimentary limb, or an imperforate anus, or something quite different; but I am inclined to regard it as an exceedingly abortive attempt at limb formation.

It is now necessary to describe shortly the osseous kernel of the fœtal ovoid. It consisted of a confused mass of pieces of bone and cartilage, between which ran some bands of muscle, and amongst which were seen at one or two places a pulpy red substance which may represent the contents of the spinal canal. For there seems to be little doubt that most of the pieces of bone were to be regarded as rudimentary vertebræ, most probably sacral and coccygeal. The mass of bones and cartilage had a vertical diameter of about 4·5 cms., and an antero-posterior and transverse of from 2 to 3 cms. In addition to the somewhat quadrilateral bones which formed the central part of the osseous mass, and which were regarded as vertebræ, there were two curved long bones situated externally. These were 3 or 4 cms. in length, and so far as their appearance went may have represented the clavicles, or a pair of ribs, or the two halves of the lower jaw. Personally, I am inclined to consider them as defective clavicles.

This very rudimentary fœtus consists, therefore, of an ovate skin-covered mass, containing, in addition to œdematous connective tissue and fat, some defective vertebræ, two long bones, and some coils of intestine, and possessing no proper umbilical cord. It is enclosed in its own amniotic sac, which is adherent to the membranes of the normal twin which was born along with it, and its vascular supply consists of two vessels (an artery and a vein) which pass to it in the membranes and enter its body in the neighbourhood of the umbilical hernial projection which was seen on its anterior surface. It is, in fact, an amorphous fœtus of the anidean type, and is, so far as I am aware, the first specimen of the kind that has been put upon record in Scotland.

In my next two communications I shall analyze the results of the examination of some thirty-four recorded specimens of the fœtus amorphus, fifteen of which were mylacephalic and nineteen

PLATE III.



anidean, and shall draw therefrom certain conclusions as to the general characters of this variety of monster.

The examination of the fœtus described above was carried out in the Royal College of Physicians' Laboratory, Edinburgh.

DESCRIPTION OF PLATES.

PLATE I.—External appearances of Fœtus Anideus and Investing Membranes (seen from front and reduced by about one-third). *a* and *b*, amnion and chorion; *c*, tufts of hair near upper end; *d*, bloodvessel entering fœtus; *e*, second bloodvessel passing in membrane to fœtus; *f*, projection on anterior aspect, containing coils of intestine.

PLATE II.—External appearances of Fœtus Anideus, Investing Membranes having been removed (natural size). Near lower border is seen slight elevation of skin with circular furrow.

PLATE III.—Sectional appearances of Fœtus Anideus (natural size). *a*, amnion, passing into furrow above larger of the two projections on anterior surface; *b*, the furrow; *c*, coil of intestine; *d*, surface of larger projection covered with amnion; *e*, slight furrow with fold of amnion; *f*, bloodvessels; *g*, long bone in transverse section; *h*, sebaceous gland; *k*, muscular fibres; *l*, adipose tissue in well-marked lobules; *m*, central osseous mass (vertebræ).

MEETING III.—JANUARY 10, 1894.

DR A. H. FREELAND BARBOUR, *President, in the Chair.*

I. The following gentlemen were duly elected Fellows of the Society:—R. W. Roberts, L.R.C.S. & P.E.; C. B. Ker, M.B., C.M.; J. M. Farquharson, M.B., C.M.; and C. A. Butchart, M.B., C.M.

II. *Dr Webster* showed a specimen of an ABORTION SAC which was passed by a woman on November 13th, 1893. Three weeks previously the abortion was threatened, and there was a daily dribbling of blood from the vagina until the sac was passed. She was not under treatment during this period. Her menstrual history gave no indication as to the length of the pregnancy, conception having occurred during a period of amenorrhœa due to anæmia. The abortion sac presented one or two points of interest. Immediately after being passed it was thought to be a complete abortion. It was about the size of a large hen's egg, the outer surface being of a pinkish-yellow colour. In the main, the surface was smooth, though here and there it presented a finely shaggy appearance. This surface at first sight was thought to be the surface of the vera separated from the uterus. On opening the sac a smooth cavity was found, and projecting from the wall a large rounded dark mass the size of a walnut, which, at first sight, appeared to be the reflexa. In the substance of the rest of the

decidua several small hæmorrhages were seen, varying from the size of a pea to that of a bean. Lying in the large cavity was a small fœtus about half an inch in length, the umbilical cord passing into the supposed reflexal sac. The fœtus was well formed, and showed the commencing buds of the limbs. The first idea formed of the case was that there had been a hæmorrhage inside the reflexa, and that the fœtus had been forced through the wall into the space between the vera and reflexa. Microscopic examination, however, showed the following points:—The outer surface of the abortion was not vera, but the reflexa. It had apparently formed a few adhesions with the vera. The inner surface of the sac was entirely lined with amnion. The large round sac thought to be the reflexa was in reality a large hæmorrhage which had occurred under the amnion, and had pushed it forwards. It is interesting to note the difference between the size of the fœtus and that of the abortion sac. The latter is the size normally found in a two or two and a half month's pregnancy; the former is only three or four weeks old. Usually such an amount of hæmorrhage in the decidua is accompanied with the death and abortion of such a young fœtus, if the abortion be delayed for two or three weeks. Here, however, the fœtus is well formed and well preserved. It may be that it was not destroyed, but lived, though feebly, until the abortion occurred. This is difficult to believe, because the large hæmorrhage occurred immediately under the attachment of the umbilical cord. It may be that it was killed, but remained intact; this is doubtful, because it showed not the slightest sign of softening. Another possibility is that the fœtus was an abnormally small one; or it may be that the case was one of early hydramnios, the disproportionate size of the amniotic cavity relative to that of the fœtus being thus accounted for. The specimen is also of interest as showing how a reflexal abortion may be mistaken for a complete abortion. In this case the vera was left behind in the uterus, and required to be removed with the curette.

III. *Dr Hart* showed Photographs of an ACHONDROPLASIAC DWARF for *Dr Hermann*, London.

IV. *Dr J. W. Ballantyne* exhibited—(*a.*) A FŒTUS WITH GENERAL DROPSY, which Dr J. Halliday Croom had kindly given him. It was the sixth specimen of the disease which he had been able to examine. It was a female, and had the usual external appearance of general dropsy as it occurs in the fœtus. In the dissection of it he was aided by Dr Samuel Davidson, Demonstrator of Anatomy at Minto House. A careful search was made for the thoracic duct in its usual position, but no trace of it was found. The only other anomaly was a less patent condition of the foramen ovale than is usually met with at this time of fœtal life.

(*b.*) A FŒTUS WITH IMPERFORATE ANUS, which was brought to him on December 16th, 1893, by one of his Dispensary students (Mr Briggs). The mother was nearly 40 years of age, and was a xiv.-para. She first menstruated at the age of 13, and was married when 17. Of her fourteen pregnancies, the second, fourth, and fourteenth (the present one) had ended in miscarriage; the sixth child was born at the seventh month, but is now alive; the others went to the full time, but three of the children died in childhood. Both her father's mother and her mother's mother had families of thirteen children, and her mother had had eight infants. There was no history of twins. In this (her fourteenth) pregnancy, labour set in at five and a half months; the waters began to dribble away about a week previously, the child presented by the breech, and there was some delay in the expulsion of the placenta. The only cause assigned for the miscarriage was the occurrence of a "heavy washing" about a week before. The fœtus, a male, weighed 715 grms. The placenta, membranes, and cord weighed 210 grms.; the placenta was pale, and its uterine surface was much broken up; the membranes appeared normal; the cord was 40·5 cms. in length, had an almost central insertion, contained two arteries and a vein, and showed little torsion. The placenta measured 13 cms. by 11·5 cms., and was 1·5 cm. in thickness. Dissection showed that the internal organs of the fœtus had a normal appearance; but it was noted that whilst the greater part of the large intestine was somewhat contracted, the sigmoid flexure and rectum were greatly distended with meconium. The left side of the pelvis was then removed in order to expose the lower end of the rectum. The left testicle was found lying at the internal inguinal ring, and the right a little above it. The rectum passed down into the pelvis lying behind the bladder; it terminated blindly at a distance of 1 cm. from the perineum, and at its termination was in close contact with the posterior surface of the urethra at its point of origin from the bladder. Externally there was a marked post-anal dimple. There was no anal aperture, but in the raphe of the perineum, which was well marked, was a small whitish projection in the usual situation of the anus. The penis was curved sharply on itself. The hands and feet were normal.

(*c.*) AN EXENCEPHALIC FŒTUS, which had been handed to him for examination by Dr Arthur Wilson. The mother was a well-developed woman, 29 years of age, living in comfortable circumstances. She had always been healthy, and was married when she was 28 years and 9 months old. The uterus and annexa were normal, and her menstrual functions regular. The deformed fœtus was the result of her first pregnancy. During the gestation she had frequency of micturition, and in the last week she suffered from great thirst (drinking as much as eight pints of water daily). The fœtal movements were felt strongly the week before delivery,

and during this same week the patient got very rapidly bigger (as large as if at ninth month). Uterine pains began on Friday, December 22nd, lasted for six hours, returned again on Sunday, and persisted till the child was born on Monday (Christmas day) at 11 A.M. The patient had been anæsthetised, and the os dilated with the hand. The head presented. The child's heart was beating at the time of delivery, but it did not attempt to respire. The mother made an uninterrupted recovery. The father was a strong healthy man, 33 years of age. There was no family history of deformity on either the father's or the mother's side. The fœtus, a female, weighed 1260 grammes, and had a total length of 35 cms. As seen from the front, it had the usual appearances of anencephaly; but on looking at the head from above it was found that the cranial vault covered by the scalp was present. The vault-bones, however, were evidently lying in close apposition to the basis cranii, a fact that was rendered very clear when a vertical mesial frozen section had been made. From the lower occipital region there projected the cerebral mass, measuring 16 cms. in circumference, consisting of the two halves of the cerebrum, and lying upon the nape of the neck. The frozen section showed that there was cervical spina bifida, and marked lordosis of the cervical part of the spine, along with the usual displacement of the parts in the neck which is found in anencephaly. The ears had the usual crumpled appearance; but the hands and feet were normal. The placenta was kidney-shaped (about 10 inches long), and the cord was inserted near one end, but was not marginal. The membranes were reflected off the fœtal surface of the placenta, about 2 inches from one end. There were at least five quarts of liquor amnii (hydramnios).

(*d.*) A PSEUDENCEPHALIC FŒTUS, which had occurred in the practice of Dr A. T. Sloan, to whom he was indebted for the specimen. The mother was 28 years old, a i.-para, had advanced to about the sixth month of pregnancy when uterine contractions set in (cause unknown), and three days afterwards (December 30th, 1893) the malformed fœtus was born before Dr Sloan arrived at the house. There was no hydramnios, and the placenta and cord appeared normal. The mother had scarlet fever in childhood, which was doubtless the cause of the mitral stenosis from which she now suffered, but she had not had any symptoms of it till two months ago, when hæmoptysis, palpitation, and jaundice developed. She had also incipient phthisis. She was one of a family of seven, of whom six are alive and healthy. The father of the fœtus was a healthy man, and had had four perfectly healthy children by his first wife. There was no family history, on either side, of hydrocephalus, spina bifida, or other malformation. The fœtus, a male, weighed 471 grammes, and had a total length of 26 cms. Its width, with outstretched arms, was 27 cms.; the circumference round the shoulders was 21 cms., and under the axillæ 19 cms.

There was no cranial vault, but on the basis cranii there lay a bilobed reddish mass covered by thin membrane, measuring 7 cms. in breadth, and 16 cms. in circumference. The distance from the perineum to the top of the cerebral tumour was 17·5 cms., and from the same point to the upper border of the supra-orbital margin, where the osseous deficiency began, was 15 cms. There was cervical spina bifida, and the cervical part of the spine showed, as seen in frozen section, marked lordosis. There was the same absence of external indications of a neck, the same contorted appearance of the ears, and the same displacement of the organs in the cervical regions as is met with in the anencephalic fœtus. The age of the fœtus was evidently between five and six months, and the skin had the reddish hue peculiar to early intra-uterine life. The anatomy was studied by means of frozen sections (vertical mesial).

(*e.*) An ABORTION SAC containing an embryo showing arrested development. The specimen had been kindly given to him by Dr J. M. Farquharson, in whose practice it had occurred. It came from a woman of 26, a vi.-para, who had last menstruated at the end of October. She had threatenings of an abortion on the 27th and 28th of December 1893, and on the night of the 29th the ovum was expelled. No medical man was present at the time of its expulsion. There was some slight hæmorrhage. The woman had been married when 18 years old, and had been six times pregnant. She had not previously had an abortion, but had in one instance given birth prematurely (at the seventh month) to an infant that only lived twenty minutes. She had lost two of her children in June (1893) from scarlet fever; the other two were living and healthy. Her mother had had a family of twelve. The father was healthy. No cause for the abortion was known, save possibly a strain whilst washing, about a week previously. The abortion sac had an ovoid figure, and measured 7 cms. in length by 5 cms. in breadth. It was covered by the decidual membranes, except at the narrow end where the chorion was exposed; at the opposite (the broad end) was a recent hæmorrhage. The sac, when opened, was found to contain 6 drachms of clear liquor amnii, and at a point about midway between the broad and narrow end was seen a small embryo and umbilical vesicle. The embryo measured only 4 mms. in length, whilst from the size of the abortion sac and the history of the pregnancy it ought to have been at least 4 or 5 cms. in length. The umbilical vesicle was pear-shaped, with the narrow end near to the embryo, was flattened, and had a diameter of about 4·5 mms. Dr Ballantyne proposed at a future meeting of the Society to show enlarged photographs of the embryo and umbilical vesicle. A black spot near one end probably indicated the optic vesicle, and there were no traces of limbs. All these (five) specimens had been examined in the Laboratory of the Royal College of Physicians.

V. Postponed Discussion on Dr J. W. Ballantyne's paper on INFLUENZA IN ITS RELATION TO OBSTETRICAL, GYNECOLOGICAL, AND PEDIATRIC CASES.

The President said that he had read with great interest Dr Ballantyne's paper, and hoped that it would have the result of drawing out the experience of Fellows with regard to the points raised in the paper. Personally he had not seen a sufficient number of cases of influenza to express any opinion as to its effect on menstruation and pregnancy. The most noteworthy facts which Dr Ballantyne and others had brought forward were the tendency to bleeding from the uterus during the commencement of influenza and to abortion. But in judging the significance of these, we should also require to know in how many cases influenza occurred without any disturbance of menstruation or pregnancy. It might come out in discussion that there were so many cases in which influenza had no effect, that it was doubtful whether in the cases where these symptoms occurred we were justified in attributing them to influenza.

Professor Simpson said he had suggested that discussion of Dr Ballantyne's paper should be deferred, in the hope that after the Fellows had had time to think over the matter, some of them might be able to supplement the observations that Dr Ballantyne had brought before them. It was somewhat disappointing to see how little had come of the opportunities the profession had had during the past four years of studying influenza. With all the modern means of investigation it might have been expected that more insight would have been gained as to the nature and effects of this disease than has yet been arrived at. When the epidemic appeared four years ago, he (Prof. Simpson) had watched the patients in the Maternity with the view of noting whether any of them showed any trace of the affection; but the Institution remained perfectly free from any disturbances that could be referred to the disease. He had seen one patient in private attacked with influenza at the full term, in whom the labour was attended with a dangerous flooding. This disposed him to believe that Dr Ballantyne had been correct in attributing to influenza a tendency to increase uterine hæmorrhages. In any case, the paper was valuable as recording the impressions of a careful observer, and would be of great service in fixing attention on a subject of great importance.

Dr James Ritchie said that he believed that the influenza poison acted primarily through the nervous system, and that among other effects it produced congestions, sometimes very severe congestions, of internal organs—the larynx, bronchial tubes, gastro-intestinal tract, membranes of the brain; in connexion with all these he had seen hæmorrhages because of influenza. In relation to the special department of the Society, not many cases had come under his observation, although he had treated a very large number of cases of influenza. One lady at the climacteric who had a large flabby

uterus, and who previously had occasionally somewhat copious losses at the menstrual periods, who also had some months before a slight cerebral apoplexy, was suddenly seized with influenza; she had high temperature, rapid pulse, great congestion of conjunctivæ, a cerebral hæmorrhage, and very copious and alarming metrorrhagia. The latter was checked by means of the hot douche. Another lady, aged 26, about three weeks after an abortion at the third month, was seized with influenza, accompanied by congestion of abdominal organs, pain, sickness, and diarrhœa; she also complained that the womb felt very large. The discharge had been very scanty from the day following the abortion; it had stopped at the end of a fortnight, then recurred slightly, but three days after the onset of the influenza it became so copious that Dr Ritchie was sent for in the middle of the night; it was partially arrested by a crystal of ammonia iron alum, but the hot douche had much more influence, and stopped the copious loss. In children Dr Ritchie had several times found a scarlatinal rash at the commencement of influenza, also sore throat, but in all the cases which had come under his notice he had been able practically to exclude scarlatina by means of the conjunctival congestion, the catarrh of the respiratory tract, and the absence of the characteristic tongue of scarlatina.

Dr Haultain thought that, considering the manifold different symptoms which influenza manifested independently of pregnancy or other complications, it was very difficult to decide what its influence was on any given condition. From the frequently high temperatures with which it was associated, it would seem to tend to cause abortion, like other fevers; but like malarial conditions the fever was, as a rule, not of a prolonged type, and therefore did not cause premature expulsion by any means so frequently as the zymotic fevers. Doubtless from the internal congestion with which influenza had been shown to be associated, one would suppose it to be a source of abortion from a tendency to hæmorrhage into the decidua. From practical experience, however, he found that, in the first place, pregnant women were not prone to take influenza; and, secondly, its effect on gestation was by no means so marked as one would expect. It looked very like as if pregnancy offered a certain amount of immunity from the disease. His observations were entirely opposed to Dr Felkin's experience as reported to the Society two winters ago. In the puerperium he was much struck by the high temperatures recorded when complicated by influenza; in one case in particular, the temperature on the fourth day went up to 107°·8 F. without any fatal result. He had met with several cases of influenza associated with gynæcological conditions, but from the obscure workings of the uncomplicated disease he could not definitely attribute the special symptoms to it in such a manner as to make the observations of any special value.

Dr Felkin said that he had read Dr Ballantyne's paper introducing the discussion on influenza with much interest, and that as his own paper on "The Influence of Influenza on Women," which he read before the Society in December 1891, had been referred to, he had much pleasure in making a few remarks, although he had not very much to add to that paper. He had not seen very many cases of influenza this last season, although he had had a considerable number in 1892, and his further experience of the disease had only confirmed his previous opinion, that it was dengue modified by climate. He would first reply to Dr Ballantyne's queries; and he did not think that Dr Ballantyne was right in thinking that the influenza was not truly menstrual. The two patients he had previously referred to are now menstruating regularly. The patient aged 10 was rather irregular at first, the period occurring every six and eight weeks during the first year, but now occurring normally. The other case, in which the girl was rather over 12, has menstruated regularly ever since. With regard to the case of the woman aged 49, Dr Felkin saw her a week ago, and found that she menstruated for very nearly two years. Apart from this, however, there can be no doubt that metrorrhagia does occur, as Dr Ballantyne mentions, and five other cases which have come under his notice presented the appearances which Dr Ballantyne quotes from Gottschalk and R. Müller; but out of the five cases the ovaries were affected in four. One of these cases was interesting, because of the persistence of the ovarian irritation. The case was briefly as follows:—A lady, aged 31, the mother of three children, had a severe attack of influenza in February 1891. The flow occurred upon the fifth day, with a secondary rise of temperature to 104°·2. Both ovaries were enlarged and exquisitely tender. Within a month the left ovary became normal, but the right retained a large size, and for more than a year and a half this patient suffered from very severe ovarian neuralgia, which Dr Felkin had extreme difficulty in subduing. The periods were accompanied by great discomfort, and on several occasions hot douches were necessitated. In this connexion three cases of orchitis have occurred in Dr Felkin's practice—two in 1892 and one in December 1893—in which pretty smart orchitis has occurred. In the last case, in 1893, it went on to suppuration, probably due to a severe fall which the patient got before he was fully convalescent. The only other point which Dr Felkin wished to refer to was the necessity which existed for care being taken by women who are attacked by influenza either during pregnancy or when suffering from any pelvic disease. He had seen several cases in which the troubles from which the women happened to be suffering were markedly increased by influenza, and he had had two other cases of abortion. One occurred in a healthy primipara at about the third month; the other in the third pregnancy of an otherwise healthy woman, at

about the second month. In both cases recovery was very tedious.

Dr Ballantyne said, in closing the discussion, that he had been somewhat surprised to hear, from several of those who had spoken, that influenza had only in rare instances occurred as a complication of their obstetrical and gynæcological cases He was forced, therefore, to conclude that his own experience had been exceptional. He was much interested by what Dr Felkin had said about the continuance of the menstrual flow in the two young girls in whom influenza was said to have initiated the menstrual function prematurely, and he still felt that it was somewhat strange that influenza should have this power. Such an occurrence might possibly throw some light upon the mechanism of menstruation. Dr Haultain's cases were of great interest, and could scarcely be regarded as simple coincidences; the association of influenza with eclampsia gravidarum was, he believed, a novel observation. Dr Ballantyne agreed with Prof. Simpson that the comparative freedom from influenza of the patients in the Maternity Hospital was a noteworthy fact, and one that it was difficult to explain. There were many facts about the disease which were still most obscure.

VI. PROLAPSE OF THE BLADDER DURING PREGNANCY AND PARTURITION.

By James Ritchie, M.D., M.R.C.S. Eng.

A lady to whom Dr James Ritchie expected to be called for her first confinement at the end of last June, sent for him on the 20th of that month. For some time she had difficulty in walking in consequence of something which came down soon after she got out of bed in the morning. It had existed in a less troublesome degree for a longer period; it disappeared soon after she lay down, and gave no trouble overnight, but shortly after rising it descended, interfering with walking, and while it remained down there were frequent calls to pass urine.

She was 28 years of age, well built, healthy looking, dark hair, and with a good complexion. On examination there was found projecting from the vulva a rounded swelling about the size of a Tangerine orange; it was not tender, its walls seemed to be of equal thickness all round, it was easily pushed up into the vagina, and was found to consist of the anterior wall of vagina and the posterior wall of bladder. There was no tendency to a recurrence of the protrusion while the recumbent posture was maintained, but it reappeared readily when a bearing-down effort was made in the standing position. The uterus was not abnormally high up, and the os was readily reached by the examining finger; there was, however, a considerable degree of laxity of the lower portion of the abdominal wall.

The patient was advised to maintain the recumbent position as much as possible.

Nine days later, Dr Ritchie was called to the confinement. The bowels had been relieved before his arrival. There was nothing unusual to note during the first stage, either as to frequency of micturition or the character of the pains. As soon as the head began to advance, the bladder was pushed down before it with each pain, and would have protruded externally, but counter-pressure was made with the fingers on the part which tended to prolapse during the pains, and when the head was sufficiently low the prolapsed structures were with some difficulty, but with care, pushed above it, and after this the head descended more readily. The further course of the delivery was quite normal. During the first twenty-four hours the urine required to be drawn off twice. For a day or two there was a little difficulty in starting the process of micturition, but since that time there had been no trouble. The patient was kept in bed for three weeks, and although, when she first got up, she experienced a feeling of fulness at the vaginal orifice, there never was any protrusion nor inconvenience, and the functions were now all normal.

As this case has certain points of peculiarity, it was thought that it might prove interesting to the Society.

On looking into the literature relating to displacements of the bladder, one is struck with the great difference in the importance which seems to be attached to it. In some of the text-books it is merely mentioned as being a possible cause of difficulty; in others it has a very considerable amount of space devoted to it. In Sir James Y. Simpson's *Selected Obstetrical and Gynecological Works* a very good synopsis of the subject is given in the lecture-notes at the commencement of the volume.

Although there are many recorded cases of partial prolapse at or near the full term of pregnancy, there are comparatively few in which there was a hernial protrusion as in the one above described.

As recently as 1863 W. H. Broadbent stated (*Obstet. Trans.*, Lond., vol. v. p. 44) that he did not find in systematic works on midwifery or in obstetrical transactions any complete account of the disturbing influence which derangement of the bladder seems to exert on the first stage of labour. After describing what had been previously recognised, he divided the conditions of the bladder which he found to interfere with the first stage of labour into four classes—

1. Complete prolapse, with or without distention.
2. Partial prolapse, *i.e.*, where the fundus remains between the uterus and symphysis pubis.
3. Distention while *in situ*.
4. Irritability.

In relation to the *time* of its occurrence and the kind of case in

which prolapse is most common, Broadbent states that it does not occur suddenly during labour, but is in most cases present during impregnation, as a result usually of repeated child-bearing. It may give rise to little or no inconvenience during pregnancy, but at any time during the later months the bladder may become distended, false pains of great severity may be set up, and labour even induced prematurely. Ramsbotham (*Med. Times and Gaz.*, 1859, vol. i. p. 4) states that in all the cases which he had seen the patients had borne children before; that three-fourths of them had slightly diminished conjugate diameters at the brim of the pelvis; that all of these cases but one had to be delivered with long forceps. But in only one case had he found prolapse of the bladder before the onset of labour,—that is, during the latter part of pregnancy.

In the case recorded by Dr Ritchie the patient was a primipara, who was well formed, had no contraction at the brim; the natural powers were sufficient to expel a large well-formed child. The prolapse had lasted for some weeks before the onset of labour.

As to the *symptoms*.—Both of the above-mentioned authors describe these as being very distressing, consisting of painful sensations in the lower part of the abdomen and external genitals, constant desire to micturate, inability voluntarily to void urine, sometimes involuntary escape of urine, slow dilatation of the os uteri, greatly protracted labour and much unnecessary pain. Broadbent also states that the labour may be protracted and the suffering great when there is prolapse, even although there be no bladder symptoms, such as frequency of micturition.

In the case recorded above, the first stage of labour was quite normal, which proves that protraction of the first stage with unusual suffering are not necessary consequences of prolapse of the bladder. It is a question whether these writers have sufficiently discriminated between the influence of the various disturbing elements present, viz., prolapse, distention, irritability of bladder. Simple distention without prolapse is known to cause suffering and delay, and irritability and tenderness of the bladder often cause much suffering, even when there is neither prolapse nor distention. Croom (*A Study of the Bladder during Parturition*, 1884) has shown how the bladder is affected in the first stage of labour, viz., 1*st*, By pressure upon it in consequence of what has been called the form—restitution power of the uterus, by means of which the fundus uteri is drawn forwards and downwards; this will be greatest when the abdominal walls are tense and the membranes unruptured, and the amount of liquor amnii great. 2*nd*, A greater amount of pressure is induced by the stretching of the cervix; the long fibres of the uterus draw upwards the cervix, and along with it the bladder, causing direct pressure on the viscus. If the bladder is irritable, pressure in these two ways will cause much

suffering. Some of the cases recorded as partial prolapse without retention would have been better classed as cases of tender and irritable bladder.

With the *diagnosis* of the above case there was no difficulty; but in partial prolapse, when the vagina is filled with a distended bladder, if care be not taken mistakes might arise. Hamilton, in his lectures, recorded a case in which the bladder was punctured under the impression that the operator was evacuating the liquor amnii. Merriman, in a synopsis of the various kinds of difficult parturition, also records a similar case.

The *treatment* calls for no special remark, unless it be that in all cases of protracted labour, and in all cases in which the suffering seems to be out of proportion to the amount of work done, the condition of the bladder should be investigated with great care. If there be irritability of the bladder, probably small quantities of chloroform will relieve suffering and hasten the delivery. If the bladder be distended, of course it must be emptied by means of the catheter, and it is well to remind ourselves that a much smaller quantity of urine will cause over-distention at the time of confinement than in the unimpregnated uterus. If it be prolapsed, it must be supported during the pains, and as soon as possible pushed with care above the descending head.

A very interesting case is recorded by Christian in the *Edinburgh Medical and Surgical Journal*, 1813, vol. ix. p. 281. He was called by a midwife because of delay,—the patient had been in labour from Saturday morning till Monday morning. He found prolapse of the bladder, drew off a pint and a half of urine; the head descended quickly to the perinæum; he left the midwife to finish. Next morning he was called to the same patient; he found that things had gone on as he had anticipated, but there was a second child; he found a state of matters similar to that which existed at his first visit; he drew off a large quantity of urine, and three pains brought the second child into the world.

Ramsbotham states that a chronic prolapse is likely to follow its accidental descent in labour. There are several recorded cases in which this unfortunate sequel did not result, and in the one reported above there has been no tendency to recurrence up to the present time. Doubtless the indication is to keep such a patient in bed for a longer time than usual.

What is the *cause* of prolapse, partial or complete?

Webster (*Researches in Female Pelvic Anatomy*, 1892) classifies the conditions which affect the lie of the viscus thus,—1. Softening and stretching of its supports; 2. Intra-abdominal pressure; 3. Weight of the uterus; and adds that the first of these probably varies considerably in different cases.

The author of this paper thinks that the position of the bladder is determined by—

1. The condition of its ligaments, true and false.

2. The pressure and traction exerted upon it by surrounding organs. (*a.*) The weight of these organs. (*b.*) The amount of intra-abdominal pressure.

3. The fluid pressure and the amount of fluid within the bladder.

1. Not only are those portions of the recto-vesical fascia, which are called the true ligaments of the badder, of importance, but the fascia itself doubtless plays an important part in affecting the position of the bladder, and any relaxation of any of these supports would favour the occurrence of displacement. Probably, also, the superior false ligament containing the remains of the obliterated urachus has a considerable influence in supporting the fundus.

2. (*a.*) The pressure exerted upon the bladder by surrounding organs. Although the engraving of the lateral view of the contents of the male pelvis, which has been copied from *Quain's Anatomy* into other text-books, represents the distended bladder as a globular sphere, probably none of us think that in the living subject it has this shape. Drawings of frozen sections of the unimpregnated woman by Hart, and of the various stages of pregnancy by Barbour, Webster, Soffiantini, and others, show that the position and shape of the bladder is variable. At the full term, in an antero-posterior section, the cavity of the empty bladder may be represented by a straight line running almost horizontally, with a slight upward obliquity (if the body is in the erect posture) between the gravid uterus and the pubes; in other plates it is seen to lie behind the pubes, and is represented by three arms of different lengths diverging at variable angles from a common centre. The bladder is moulded by the surrounding viscera; one of the most important of these is probably the gravid uterus.

Croom has shown that in the early stage of pregnancy, when the uterus is anteverted, as it frequently is, it must often press upon the bladder so as to interfere with its distention; this accounts for the frequency of micturition which is common in the early months. If we examine diagrams of this condition at this stage, we see how prolapse of the bladder may at least be favoured. As pregnancy advances the weight of the uterus is partly sustained by the anterior abdominal wall; if that wall is lax, the position of the fundus uteri and of the whole anterior wall of the uterus will be lower than when the abdominal wall is tense, and we would expect that the ascent of the bladder between the uterus and the pubes might be rendered more difficult. But we have not only the pressure of organs from above, but the support of those structures which go to constitute the floor of the pelvis and its potential outlet. Any weakening of any part of these would favour a degree of prolapse of the bladder. Such a condition is not uncommon in elderly women who have procidentia uteri; it is sometimes the precursor of procidentia, and is most common in those in whom the floor of the pelvis is lax and the perinæum has suffered during

delivery. Ramsbotham has pointed out that prolapse of the uterus is not the cause of prolapse of the bladder during delivery, because prolapse of the uterus is common, whereas the bladder affection is rare.

(*b.*) The amount of intra-abdominal pressure will of course be seriously affected by contractions of the abdominal wall. During labour we have a practical demonstration of the effect of abdominal contraction upon a prolapsed bladder, and from this we may surmise what will be the effect on the bladder of lifting heavy weights or of increasing the pressure by any means during pregnancy.

3. The pressure and the amount of fluid within the bladder. The direction in which the bladder dilates will be regulated by the usual laws of hydrostatics and hydrodynamics. The dilatation will take place in the direction of least resistance. The amount of fluid within the organ will very materially affect the influence upon it of pressure, whether by the weight of adjacent organs or of sudden force applied through them in consequence of muscular effort increasing intra-abdominal pressure, and this it does by increasing the surface on which pressure acts.

The factors which favour or produce prolapse of the bladder are several, and their action in any individual case somewhat complicated. They are chiefly anteversion of the gravid uterus, a relaxed condition of the vesical ligaments, a relaxed condition of the floor of the pelvis and its potential outlet, and strain producing sudden increase of intra-abdominal pressure, and this is more powerful when it acts upon a bladder containing a moderate amount of urine.

The President had listened with much interest to Dr Ritchie's paper. Prolapse of the bladder in the late months of pregnancy was so unusual in a primipara that this case was specially interesting. He asked whether the position of the cervix was altered, as indicating whether it was a true prolapse or a cystocele. It was interesting, also, that it had not recurred after the puerperium.

Dr J. W. Ballantyne was much interested by the account Dr Ritchie had given of the factors which lead to prolapse of the bladder. He had not himself seen a case of the kind which had just been described; but he had recently noted troublesome prolapse of the bladder in a patient who had had the uterus removed by abdominal section for fibroid growths. This case illustrated the combined action of two of the factors in the production of prolapse,—pressure from above and diminished support below; for the patient had been wearing a tight abdominal belt, and the operation had weakened the pelvic supports. He had instructed the patient to give up wearing the belt, and had introduced a ring pessary, with the result that she was now able, for the first time for many months, to do her usual work and earn a living.

Dr Ritchie replied.

VII. STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY.

(SECOND SERIES.)

VI. ALLANTOIDO-ANGIOPAGOUS TWINS—THE FŒTUS AMORPHUS ANIDEUS.

By J. W. BALLANTYNE, M.D., F.R.C.P.E., F.R.S.E., etc.

IT will be convenient to describe first those amorphous fœtuses which most closely resemble the specimen I have put on record (*v.* p. 41), and to which the term anidean has been specially applied. They represent the lowest type of development met with among the allantoido-angiopagi; and, with the exception of some parasitic fœtuses and of the dermoid cysts, they are the most rudimentary terata that are known.

Nineteen examples of the anidean fœtus, including the one just described, are to be found in teratological literature. Taruffi,[1] writing in 1882, gave details of eleven specimens described by various observers; but amongst them he put the case recorded by E. Müller, which others have grouped with the paracephali (paracephalus apus cardiacus).[2] On the other hand, Taruffi omitted to mention Kleinwächter's case, which is evidently a true anideus. Since 1880 eight additional specimens have been reported, and in this way the total number of observations (19) is made up.

Definition. — The fœtus amorphus anideus may be defined as an allantoido-angiopagous twin, "*consisting of a rounded, sometimes lobulated mass, covered with skin, and showing no indication of limbs.*" This is the definition given by Taruffi, and it may be supplemented by the statement that *it consists in most cases of adipose and œdematous tissue, embedded in which are certain osseous rudiments, and some traces of internal organs.*

Historical Notes.—The first specimen of the anidean fœtus to be put on record was one described in 1533 by Benedetti (1),[3] and he evidently regarded it as a uterine mole: from the somewhat meagre details given, it is, however, justifiable to group it, as Taruffi does, with the anidei. The second observation was a most interesting and curious one: it was that related by Vallisneri (2) in 1697. This specimen, although referred to by Vrolik (4), was either forgotten or deliberately omitted by all succeeding teratologists, until Taruffi in 1882 restored it to its proper place among the allantoido-angiopagi. It was recorded in full in the second volume of the *Opere fisico-mediche* of Antonio Vallisneri in 1733;[4] but it was originally sent by the author, along with a letter, to

[1] Taruffi (C.), *Storia della Teratologia*, ii. p. 217, 1882.
[2] Ballantyne (J. W.), *Edin. Obstet. Soc. Trans.*, xviii. p. 263, 1893.
[3] The figures within parentheses refer to bibliography at end of paper.
[4] In giving this reference, Taruffi mentions page 320; but on consulting the original, I find that it is really page 32, although it is misprinted p. 320.

Malpighi and to Lanzoni. It was incorporated in the *Opera posthuma* of Malpighi, published in London in 1697, and it was printed in full by Lanzoni in the *Miscellanea curiosa* in 1691. Finally, it was also published by its author in the *Galleria di Minerva* in 1708. It was entitled, "Parto maraviglioso di Vescichette con un 'esatta ricerca, che cosa potessero essere, accaduto in Scandiano l'anno 1690." This communication had an importance which fully justified its publication in various places; for in it the anidean fœtus was provided with a heart, and was born, not along with a normal twin, but in association with a *hydatid mole.*

Bland (3), in 1781, recorded the birth of an anidean twin in his "Midwifery Reports of the Westminster General Dispensary." His specimen remained till 1891 the only one of the kind reported in Great Britain. Vrolik (4) saw a case in 1822, and Gluge and D'Udekem (5) put on record another in 1859. Taruffi does not consider the evidence sufficient to warrant us in grouping Bozzetti's specimen[1] (described in 1844) among the anidei, and Barkow's case[2] has been regarded as one of paracephalus apus.[3] Spliedt (6) gave a good anatomical description of an anidean in 1860; Cornil and Causit (7) saw another in 1866; Calori (8) reported one in 1867; and Elb, in his dissertation, and Credé, in the *Monatsschrift für Geburtskunde* (9), gave an account of yet another in 1869. Kleinwächter's specimen (10), published in 1872, seems to have escaped the notice of teratologists. Sangalli's case (11) was a well-reported one. Freudenberg (12), Lehmann (14), and Neugebauer (15), observed cases in Germany between the years 1880 and 1886. Noeggerath (13) reported a somewhat doubtful specimen in the United States in 1882, and in the same country Boldt (16) observed a genuine example in 1889.[4] Herman and Bluett (17) showed a fœtus anideus to the London Obstetrical Society in 1891, and Heller (18) recorded another in Virchow's *Archiv* in 1892. Finally, the specimen described in this paper was shown at a meeting of the Edinburgh Obstetrical Society in January 1893.

Synonyms.—The early specimens had, as a rule, no distinguishing name applied to them. Saint-Hilaire in 1836 introduced the term *anideus* in describing Bland's specimen, and Cornil and Causit (7), Calori (8), and Taruffi have followed his example. Gluge and D'Udekem (5) seem to have been the first to apply the term *amorphus* (introduced by Gurlt into comparative pathology) to a specimen occurring in the human subject; and this expression has been the favourite one, having been used by Kleinwächter (10), Freudenberg (12), Lehmann (14), Herman (17), and Heller (18).

[1] Bozzetti (C.), *Annali univers. di Med.*, iii. p. 9, 1844.
[2] Barkow (H. C. L.), *Beitrage zur path. Entwickelungsgeschichte*, p. 5, 1854.
[3] Ballantyne (J. W.), *Edin. Obstet. Soc. Trans.*, xviii. p. 262, 1893.
[4] Boldt himself seems to have regarded it as an acormus.

Neugebauer (15) called his specimen a *fœtus amorpus seu anideus*. Spliedt (6) and Elb and Credé (9) simply use the expression *acardiac monster*.

Clinical Details.

In most of the recorded cases some clinical details are given (2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19); but in certain instances (5, 6, 8, and 17) these were very imperfect. In all the cases the pregnancy which ended in the birth of an anidean fœtus was plural: in fifteen cases (3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, and 19) it was born along with another fœtus; in two instances (11 and 12) there were triplets; and in one case (2) the other product of the gestation was a hydatid mole. It is an interesting fact that in seven cases (5, 6, 14, 15, 16, 18, 19) the specimen was obtained by a midwife, who afterwards handed it over for examination to a medical man.

Maternal History.—The general health of the mother prior to the pregnancy resulting in the birth of the anidean fœtus seems generally to have been quite satisfactory (*e.g.*, Nos. 3, 4, 7, 13, and 14); but in one instance (2) it was far from good. Her age was 17 in No. 18; 18 in No. 11; 19 in No. 10; 24 in No. 7; 27 in No. 3; 30 in No. 15; 31 in No. 19; 33 in No. 16; 35 in No. 14; 36 in No. 12; 43 in No. 2; and 45 in No. 9. She was a i.-para in Nos. 3, 6, 7, 10, 11, 13, and 18; a ii.-para in No. 15; a iv.-para in No. 19; a vi.-para in Nos. 2 and 16; a vii.-para in No. 12; an viii.-para in No. 14; and a "multipara" in No. 9. The disproportionately large number of primiparous mothers is worthy of note. In the case of the multiparæ, little reference is made to the previous obstetric history, and it may be regarded as probable that it was uneventful. In no instance was there any mention of an earlier plural conception.

The pregnancy which resulted in the birth of an anidean fœtus was, as has been said, always plural—usually twins, but occasionally triplets. The presence *in utero* of this form of monstrosity does not seem to have shortened the gestation. In some of the cases (Nos. 4, 7, 11, 15, and 19) it was definitely stated that labour occurred at the full term; in one instance (13) the confinement was actually overdue; and in Nos. 3, 5, 6, 8, 9, 10, 14, 16, 17, and 18 the details given lead us to believe that the gestation ended at the normal time. In No. 12, however, it is probable that the confinement occurred a few weeks before term; and in No. 2, although the data were confused on account of the presence *in utero* of a hydatid mole, labour probably took place at the seventh month. Only in one instance—the case of triplets reported by Freudenberg (12)—was the pregnancy stated to have been complicated by hydramnios, and it was the sac belonging to the dropsical fœtus and the anidean that contained the excess of liquor amnii;

hydramnios in this case came on at the sixth or seventh month. In most of the other cases (*e.g.*, 4 and 14) the pregnancy was normal; but in No. 7 the patient suffered much from hysteria in the last month; in No. 9 there was some uterine hæmorrhage; in No. 11 (the triplets) the large size of the abdomen caused much discomfort, and the patient had resorted to various measures (compression, etc.) for the induction of abortion; and in No. 14 it was reported that the mother had got a severe fright when two months pregnant. In No. 2, however, the pregnancy was markedly abnormal, for it was complicated by persistent uterine hæmorrhage, vomiting, pain in the right hypochondrium, fever, etc.

In nearly every case the anidean fœtus was expelled after the birth of the other twin (Nos. 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 18, and 19); but in No. 2 it was born first, and was followed by the hydatid mole, which in this case represented the co-twin. In the triplet cases the monster was born second in No. 11, and third in No. 12. The monstrous fœtus usually appeared shortly after the other twin, either along with or shortly before or after the expulsion of the placenta; but in No. 4 it was born on the succeeding day, in No. 3 on the third day of the puerperium, and in No. 13 not till twenty days had elapsed. Usually the anidean fœtus was expelled by the natural efforts; but in No. 10 it was extracted by forceps. The labour, as a rule, was easy; but in No. 9 it was rendered difficult by the large size of the normal infant; in No. 10 the shortening of the conjugata vera delayed the birth; in No. 12 (triplets) the first born (a dropsical infant) was extracted with difficulty by a hook, and the second born infant was also removed artificially; and in No. 13 the first born infant had a hydrocephalic head, which had to be punctured and the cranioclast used before labour could be completed. In some instances (7, 9, 15, 18, and 19) the anidean fœtus and the single placenta were expelled together; in other cases (5, 6, 10, 12, 14, and 16) it came away or was removed some time after the birth of the monster; and in Nos. 3 and 13 the afterbirth followed the normal twin, but preceded the monstrous one. In Vallisneri's case (2) the placenta was not expelled until some days after the birth of the anidean fœtus and the hydatid mole. The puerperium was generally normal; but in No. 13 septic endometritis occurred, from which the patient did not recover till the twentieth day after labour, when the fœtus anideus was expelled.

Paternal and Family History.—It was stated in No. 2 that the mother of the anidean fœtus was married to a septuagenarian, by whom she had previously had four female children and one male infant. In No. 7 the father was healthy, although not robust, and his mother was suffering from cancer. In Nos. 14 and 19 it was specially stated that there was no record of plural births in the family history.

Infantile History.—The anidean fœtus necessarily died immediately it was separated from the placenta of the co-twin. With regard to the other infant (or infants), it seems generally to have been born alive, although this fact is not always distinctly stated. In No. 11 (triplets) the first born was alive and well formed, and the third born was also living, but weakly; in No. 12, the other triplet case, the first born was affected with general dropsy, whilst the second was alive at birth, but was atrophic, and died in a short time; and in No. 13 the co-twin was the subject of hydrocephalus, and had to be destroyed by the cranioclast during labour. In most cases, however, the other infant was well formed (Nos. 3, 4, 5, 6, 7, 8, 9, 10, 14, 15, 16, 17, 18, and 19). In No. 2, an altogether unique case, the anidean fœtus was accompanied by a hydatid mole, which we must regard as the representative of the other fœtus: in this instance the anideus had a heart, and this circumstance probably was the explanation of this most anomalous state of things. It is impossible to say whether the twins were of the same sex, for the anidean monster had no genital organs. The other twin was a female in seven cases (Nos. 3, 4, 6, 8, 10, 14, and 19); a male in three cases (Nos. 7, 9, and 15); and its sex was not stated in Nos. 1, 5, 13, 16, 17, and 18. In the triplet cases, both the other infants were males in No. 11; the first born, which had its placenta in common with the anidean, was a male, whilst the other was a female in No. 12.

Morbid Anatomy.

I. Of the Fœtus.

(1.) *General Form and Dimensions.*—In outward form anidean fœtuses very closely resemble one another. They are all more or less rounded bodies covered with skin; but they are seldom quite spherical, although some authors (Nos. 1 and 3) have so designated them. The favourite terms used to indicate the shape of the anideus were "ovoid," "oval," "ovate," "pyriform," and "egg-shaped" (2, 4, 7, 10, 12, 15, 16, 17, and 19); but "reniform" was occasionally employed (5 and 14), and "globose" in one instance (9). The fœtus was sometimes compared to a "goose's egg" (2), to a "melon" or "gourd" (1 and 7), to a flattened "bun" or "cake" (6), to the "grub of a moth" (11), to a "small apple" (18), and to a "fœtal head with two faces" (16). It may be stated, generally, that the fœtus anideus has an ovate but somewhat flattened form; that one surface (the anterior) is irregular and concave to a slight degree, and is the site of the attachment of the umbilical cord; that the other surface (the posterior) is smooth, and often somewhat convex; that one end (the upper) is usually covered by some hairs, and that the opposite extremity is generally smooth and rounded, but occasionally shows one or two small projections (a very rudimentary limb?).

As regards size, the anideus was always smaller than a normal full-time fœtus; sometimes, indeed, it was even diminutive. Its measurements were 5 cms. by 4·5 cms. in No. 7; 6 by 4·5 in No. 17; 6·5 cms. in length and 3 cms. in thickness in No. 18; 7·5 by 6·4 in No. 8; 9·5 by 7·5 in No. 16; 10 by 8 in No. 19; 10 cms. in length in No. 5; 12¾ by 12¼ in No. 9; 15 by 9·5 in No. 14; 15 by 13·2 in No. 6; 16·3 by 11·3 in No. 10; 20 cms. in length in No. 3; about 30 cms. in length in No. 11; and 40·5 cms. by 10 cms. in No. 13. The circumference (maximum) was 17 cms. in No. 18; 22 cms. in No. 5; 26 cms. in No. 19; and 28 cms. in No. 14. The weight of the monster was not always stated, but it was 50 grms. in No. 8; 170 grms. in No. 9; 260 grms. in No. 19; about 500 grms. in No. 3; 980 grms. in No. 10; 1000 grms. in No. 14; and 1900 grms. in No. 12. It may therefore be concluded that the anideus was nearly always smaller and lighter than the co-twin: thus in No. 10 the monster weighed 980 grms., and the normal fœtus 2800 grms.; but in No. 12 (the triplet case), whilst the anideus had a weight of 1900 grms., the other two fœtuses weighed only 1700 grms. and 1000 grms. respectively.

(2.) *External Appearances.*—The whole fœtus was covered with normal skin save only at the point where the umbilical cord was inserted, or where (in the absence of a true cord) the membranes or placenta were attached. The presence of vernix caseosa, either over the whole surface or only in the furrows, was noted in some instances (14, 15, and 19).

(*a.*) *One end* of the anideus (usually the broader one) was commonly covered by hairs (3, 4, 5, 7, 9, 10, 11, 14, 15, 17, 18, and 19); but these varied greatly in number, length, and colour. The hairs nearly covered the whole of the one end of the fœtus in Kleinwächter's specimen (10); they occupied a less extensive area in Nos. 4, 7, 9, 15, and 18; and in Nos. 17 and 19 they formed only a very small tuft. In length they varied from 1 cm. (9) and 1·25 cm. (18) to 2·5 cms. (15) and 3 cms. (17). They were blonde in Nos. 7 and 16; black in Nos. 10 and 11; and dark brown in Nos. 14, 17, and 18. In No. 6 it was stated that only the lanugo hairs were present. In some cases (9 and 15) the lanugo was said to be absent, but in Nos. 7 and 14 its presence on the parts of the body not covered by the other hairs was noted. The hair-covered end of the fœtal ovoid has been regarded as the *upper* or *cephalic*, and the conclusion is justified by the results of dissection.

(*b.*) The *opposite end* of the fœtus (*lower* or *pelvic*) was generally smooth, rounded, and hairless; but in No. 6 it showed a warty excrescence; in No. 11 it was bent upwards, and ended in three small projections, one of which carried a rudimentary nail; and in No. 14 there were two warty elevations in this region. The condition of the lower end of the fœtal ovoid in No. 14 might justify us in placing the specimen among the mylacephali; but it is not always possible to draw a distinct line of demarcation between the

two groups (anideus and mylacephalus), and Nos. 6, 11, and 14 may be regarded as connecting links.

(*c.*) The *anterior surface*, that which gives attachment to the umbilical cord, or, in its absence, to the membranes, was nearly always markedly irregular. It was usually divided into two or more segments by transverse grooves or fissures. The arrangement of the projections and intervening furrows varied greatly in different cases. In No. 5 the fœtus was divided into two unequal parts by the insertion of the cord and fragments of the membranes: the upper part showed on each side transverse grooves, considered by the authors (Gluge and D'Udekem) to be possibly the traces of branchial clefts, and two pinhead-sized depressions, which might be rudimentary ears, whilst the lower part was bent upwards towards the umbilicus, and had a smooth surface. Caroli's specimen (8) was roughly divided into three lobes by slight depressions. In No. 9 the fœtus was rounded in shape, the cord was inserted in a central sulcus, and the anterior surface showed numerous elevations and furrows. In No. 10, however, the cord entered the anideus in a deep groove near the lower end, whilst above its entrance were three transverse grooves, connected together by vertical ones; at one place there was a conical projection carrying a nail. The anterior surface in Sangalli's specimen (11) was very irregular: near the upper end was a soft protuberance (nasal?), with a blind pit above it; below this was a deep transverse fissure; inferior to it was a soft tongue-like projection; the umbilical cord was inserted below this, and below the cord was another deep transverse groove. In No. 15, close to the insertion of the cord, was a small penis-like appendage, with a head covered with dark-red cuticle, and surrounded by a corona of small hairs. In No. 16 the arrangement of grooves led the observer (Boldt) to think that his specimen was composed of two fœtal heads, united at their basis; but the irregularities, which were, in his opinion, traces of the double face, suggested to E. H. Grandin (who saw the specimen) the anus with a fringe of hæmorrhoids, and Garrigues reported that they represented neither face nor anus. Sometimes, as in Nos. 17 and 19, a small tubercle, sunk in a recess, was found on the anterior surface at some distance from the umbilicus, which may have indicated a very rudimentary anus. In No. 15 the fœtus was somewhat clearly divided into three parts by two transverse furrows: the upper was called the cephalic, the middle the thoraco-abdominal, and the lower the pelvic portion. In this specimen there were several little projections (rudimentary sense organs?) on the cephalic portion.

(*d.*) The *posterior surface* was in nearly every instance smooth, and unmarked by fissures, furrows, or projections. It was sometimes convex and sometimes flattened. In No. 11 it showed at one spot a small, nipple-like projection, which the author regarded

as an indication of the anus, and in No. 9 there was a furrow on this surface.

(3.) *Internal Appearances.*—It was usually found upon dissection that the greater part of the anidean fœtus was composed of connective tissue and fat. On making a section of the monster from the surface to the centre, there could generally be recognised a thick layer of œdematous subcutaneous fibrous tissue, beneath which was a fatty stratum, and in the centre a confused mass of bones, surrounded by degenerated muscular tissue. The characters of the *skin* and *subcutaneous tissue* were well described by Heller (18) in his specimen. To the naked eye the skin appeared to be thin, and no large connective-tissue septa could be seen traversing the underlying adipose tissue. From microscopic examination, it was learned that in only a few sections was there a true horny stratum corneum; there was no trace of the stratum lucidum or stratum granulosum; the rete Malpighii was proportionately little developed, and sent only short processes in between the papillæ of the cutis vera, which were themselves short; the cells of the rete had a nucleus large in proportion to the amount of protoplasm; the cutis vera consisted of a very dense but somewhat thin layer of connective tissue, resembling the corium of the glans penis; the bloodvessels seemed to be normal in the development and appearance; neither hairs nor sweat glands were found in the skin of the trunk; the sebaceous glands, however, were unusually plentiful; each consisted of several acini, and in many of them were cysts containing undifferentiated detritus; the subcutaneous tissue, save for its enormous thickness, showed no abnormality; the fibrous septa between the lobules of fat were somewhat thin; and there were no subcutaneous cysts such as are usually found in the other types of the allantoido-angiopagi. Nothing positive could be said with regard to the nerves of the skin and subdermal tissue. In the integument of the cephalic part were numerous well-developed hairs. A most important detail in which Heller's specimen differed from some of the others was in connexion with the development of hairs over the general surface. In Nos. 7, 8, 15, and 16 there were numerous hair follicles and lanugo hairs. In Nos. 15 and 16 sweat glands were described, and in No. 9 peripheral nerves were found. With these exceptions, however, Heller's description may be taken as typical of this variety of abnormal fœtus.

With regard to the *muscular system*, some fasciculi of striped muscular fibres usually were found beneath the subcutaneous tissue, in close contact with the osseous rudiments which formed the skeleton of the anideus (Nos. 6, 7, 8, 11, etc.). In No. 9 it was said that the muscular fibres were in a state of degeneration.

The *viscera* were few in number in nearly all the anideans. In Nos. 1 and 16 there were none at all. In several cases (Nos. 2, 4, 5, 6, 9, 11, 14, 18, and 19) some loops of blindly-ending

intestine were found, usually provided with an imperfect mesentery, lying near to the insertion of the cord, and containing a greyish-white porridge-like mass of meconium. A very rudimentary brain was sometimes found (Nos. 3, 4, 7 (?), 8 (?), 11, 12, and 14), and traces of the spinal cord were present in Nos. 3, 4, 15, and 17. Lungs, liver, pancreas, spleen, and stomach were described in No. 2, and some traces of glandular organs (possibly hepatic) in Nos. 5, 9, and 18. A lung was supposed to have been seen in No. 14, and a rudimentary kidney in No. 6; and in No. 14 both kidneys and a urinary bladder were mentioned. These organs were not usually contained in any distinct body-cavity, but were surrounded by and embedded in the loose connective and adipose tissue.

It is an interesting fact that even in fœtuses of such a low order of development a heart was occasionally met with (Nos. 2, 5, 15, and 18). In No. 5 it formed a cylindrical canal, 2·3 cms. in length, continuous, on the one hand, with the umbilical vein and some venous twigs, and on the other with two arteries, from one of which arose the two umbilical arteries, whilst from the other several arterial branches took origin, which supplied the fœtus; it contained some blood, showed no septum, and its walls were made up of striated muscular fibres. In No. 15 also the heart was one-chambered; and in No. 18 there was found a pear-sized rudimentary heart, showing fatty degeneration. In No. 2 the heart was said to be of a size proportionate to the body of the fœtus, and had an aorta and vena cava arising from it. It is unfortunate that fuller details were not recorded in this case, for in it we must conclude that the heart of the anideus carried on its own circulation, for the other product of conception was a hydatid mole. Noeggerath (13) found that his specimen was chiefly composed of membranous tissue, but there was in it a solid mass made up of striated branching muscular fibres, without sarcolemma, and containing large and small lymph spaces and vessels, and he concluded that this constituted a heart. If this be so, his specimen deserves to be placed alongside of Vallisneri's (2) in rarity.

The *skeleton* of the anidean fœtus was always very defective, and in many cases the writers have evidently had great difficulty in the identification of the bones found. The osseous rudiments usually lay in the centre of the fœtal mass. Nos. 6, 11, and 14 were the specimens best supplied with bones, whilst in Nos. 1 and 13 none at all were discovered. In No. 6 there were 16 vertebræ (11 dorsal and 5 others), a split sternum, some ribs, and half the lower jaw (?); in No. 11 there were traces of the bones of the face and spinal column, some imperfect ribs, a rudimentary pelvis, and some osseous fragments representing the femur, tibia, and fibula; and in No. 14 there was something like the basis cranii, a few vertebræ (1 cervical, 5 dorsal, and some lumbar), a sacrum, and one iliac bone. Traces of vertebræ were also found in Nos. 3, 4,

7, 15, 17, and 19. There were a very rudimentary occiput, a sacrum, a coccyx, two ilia, and some unknown osseous fragments in No. 5. There was a lower jaw or clavicle in No. 7; a pyramidal bone (cranial vertebra?) in No. 8; a sacrum with a coccyx in No. 9; a bony ring in No. 10; the manubrium sterni and clavicles in No. 12; an iliac bone in No. 15; a bone like the third phalanx of the finger in No. 16; and one like the head of the femur in No. 18.

II. Of the Placenta, Membranes, and Cord.

The authors who have reported anidean fœtuses have seldom been in a position to describe fully the fœtal annexa, for the after-birth was most commonly destroyed; but in Nos. 6, 7, 10, 12, and 15 a fairly complete account was given of these structures.

The description of the fœtal annexa given by Spliedt (6) may here be reported, for it was a full one, and may serve as a type for this group of abnormal fœtuses. The placenta was common to both fœtuses; in its structure it appeared to be normal, but it was somewhat larger (19 cms. by 18 cms.) than is usual. The chorion was single, but there were two amniotic sacs, and where the two amnions were in contact a double layer was found, the component parts of which could, however, be easily separated one from the other. There were two umbilical cords, both of which had an eccentric placental insertion; that of the normal twin was attached 3 cms. and that of the anideus 2 cms. from the border of the placenta, and the distance between their insertions was 9 cms. An injection passed easily from the vessels of the cord of the normal into those of the cord of the deformed fœtus. The cord of the former was normal in length, and contained two arteries and one vein; that of the latter was only 7·5 cms. in length, and showed one artery and one vein. The umbilical vein of the normal twin, on entering the placenta, divided at once into two branches, one of which had the usual distribution in the after-birth, whilst the other ran on the surface towards the cord of the anideus, entered it, and proceeded to the body of the monster, to be inserted on the left side above the first rib. One of the arteries of the normal cord had a similar arrangement. There was, therefore, a complete anastomosis between the two cords. A somewhat similar description was given in No. 10: the placenta was normal in size, but the part of it corresponding to the anideus was small; the chorion was single, the amnion double; the cord of the normal twin was short (27 cms.), was centrally inserted, and from the point of attachment an artery and a vein went to the part of the placenta belonging to the monster, and there formed an umbilical cord 5·4 cms. in length. In No. 12 (triplets) there were two placentas: one of these was normal, and belonged to the healthy infant; the other was common to the dropsical fœtus and the anideus, and was

very markedly œdematous. The membranes had a natural appearance; the cord of the dropsical fœtus was very œdematous; the anideus had no cord, but was inserted directly upon the dropsical placenta, at a point where calcareous deposits were to be seen in it.

The fœtus was sometimes expelled with an intact amnion (Nos. 2, 15, and 19), and in No. 15 the sac contained about 50 grms. of clear liquor amnii; but, in most cases, only shreds of the amnion were found attached to the anideus, usually in the neighbourhood of the insertion of the funis. In some instances the umbilical vessels were situated in the membranes, and passed directly from them (or from the placenta) into the fœtus (*e.g.*, Nos. 7, 12, 17, and 19), and in these cases there was, therefore, no true umbilical cord. It was usual, however, to find a cord; but it was almost always a thin one, destitute of jelly of Wharton (Nos. 5, 8, 9, 15, 16, and 18), and commonly contained only two vessels, an artery and a vein (Nos. 4, 6, 8, 9, 10, 11, 14, 15, 16, and 18). In No. 5 the cord of the anideus was exceptional, for it contained two arteries and one vein.

Usually the placenta, membranes, and cord of the co-twin were normal, but in No. 12 (*q. v.*) they were not; and in No. 2 an altogether peculiar state of things existed, for in it there was a portion of placenta (apparently normal) attached by a cord to the heart-bearing anideus, whilst the co-twin and its annexa were converted into a hydatid mole.

General Characters.

From the foregoing analysis of the clinical details and morbid anatomy of the various anidean fœtuses that have been recorded, the following general conclusions may be drawn:—

1. The fœtus amorphus anideus is always the product of a plural pregnancy: usually there is one other fœtus *in utero*, but occasionally there are two.

2. The co-twin is generally normal, but in one case it was hydrocephalic; in another, it was the subject of general dropsy; and in a third, it was converted into a hydatid mole; and in nearly every case it is born first, the anideus being expelled along with or some time after the delivery of the placenta.

3. The mother is often a primipara, and has usually had a good previous obstetric record. In no case is there the record of an earlier plural gestation.

4. The pregnancy which results in the birth of an anidean twin is not usually shortened, and is, indeed, generally unaccompanied by abnormal symptoms. The fœtus anideus is not, of course, viable.

5. The labour is not difficult as a rule, and the puerperium is uneventful.

6. The anidean fœtus has external appearances which do not at all suggest the human form, for it has an ovoid shape, and is quite unprovided with limbs. It is always small in size, and is covered with skin.

7. The cephalic end of the ovoid carries some hairs, and the anterior surface is marked by elevations and furrows, and gives attachment to the umbilical cord or membranes.

8. The greater part of the fœtus is composed of œdematous connective tissue and fat.

9. The viscera are few in number; but some coils of intestine and some traces of a spinal cord are not uncommon. A rudimentary heart was found in a few cases, and, for this reason, one might speak of an anideus cardiacus and an anideus acardiacus.

10. The skeleton is usually represented by some more or less fused bones, representing a vertebral column.

11. The placenta is single, so is the chorion; but the anideus has an amnion of its own. There are usually only two umbilical vessels, and these anastomose with the vessels of the co-twin. In the triplet cases there were two placentas, one of which was common to the anideus and its accompanying fœtus, whilst the other belonged to the third fœtus. No case of monochorionic triplets, one of which was an anideus, has yet been reported.

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[These two cases, which Billings gives in his "Index" as examples of the Fœtus Anideus, I have not been able to verify.]

VII. ALLANTOIDO-ANGIOPAGOUS TWINS—THE FŒTUS AMORPHUS MYLACEPHALUS.

THE second of the two groups into which the amorphi have been divided contains the mylacephalic fœtuses. Isidore Geoffroy Saint-Hilaire was the first to give this name (mylacephalus) to a small number of specimens which had a shapeless body with very rudimentary limbs; but he placed these in the second family of his classification (the acephali), and separated them from the third family, which contained the anideans. It seems more natural to group them, as Förster, Ahlfeld, and Taruffi do, with the anideans, and to consider them, as Taruffi does, as one division of the class of the amorphi. They are of a slightly higher grade of development than the anidei.

I have gathered together the records of sixteen specimens of mylacephalous fœtuses, including the one reported to the Edinburgh Obstetrical Society last year by Dr J. Halliday Croom (16). Taruffi noted eleven cases in the second volume of his work (*Storia della Teratologia*); but he added a twelfth in the appendix to the third volume.

Definition.—The fœtus amorphus mylacephalus may be defined as an allantoido-angiopagous twin, consisting of a somewhat rounded skin-covered mass, showing externally some traces of limbs.

Historical Notes.—The first mylacephalic fœtus of which we have any account was that recorded in somewhat obscure terms by Mappus (1) in 1687. Two specimens were reported in the next century by Klein (2) and Clarke (3). In the first fifty years of the present century six observations were made: the first was by Tiedemann (4) in 1813; the second was Siebold's specimen (5),—the description of it was lost, but its external appearances were preserved by Elben in his Atlas; the third and fourth were by Asdrubali (6) and Imbimbo (7); the fifth specimen was figured by Dubois (8), and was probably the one of which a cast was given by Zanetti to the Anatomical Museum of Florence; and the sixth was the fœtus so well described by Vrolik (9). Defilippi (10) reported a case in Torino in 1855; in 1875 two specimens by Sangalli (11) and H. Rendu (12) were put upon record with complete descriptions; and in 1882 Kroner and Schuchardt (13) examined very carefully, by means of frozen sections, another interesting mylacephalian. In 1886 Graetz reported his specimen; and in 1889 the second English specimen was put upon record by Trestrail (15), whilst in 1893 the first Scottish observation was made by Croom (16).

Synonyms.—Klein (2) called his specimen an acephalic fœtus; but Clarke (3) was satisfied with the somewhat vague expression, "extraordinary production of human generation;" and Asdrubali named his mylacephalus a "mola vera concomitante." The other authors who described specimens usually named them acephalic; but to Trestrail's case was applied Saint-Hilaire's designation "mylacephalous," and Kroner and Schuchardt regarded their specimen as an anidean fœtus, and called it "acardiacus amorphus" or "amorphus (Förster)."

Clinical Details.

As a general rule, the clinical details of the circumstances connected with the birth of mylacephalic fœtuses have been so imperfectly reported that one is not able to draw general conclusions from their analysis. In all the cases, however, it may be inferred that the pregnancy was plural; in fifteen instances (Nos. 1 to 6 and 8 to 16) the mylacephalus was born along with one other fœtus, and in one case (No. 7) there were triplets.

Maternal History.—The mother's age was 26 in No. 15; 27 in No. 14; 29 in No. 13; and 32 in No. 11. She was a i.-para in Nos. 15 and 9; a ii.-para in Nos. 13 and 14; an viii.-para in No. 11; and a "multipara" in No. 12. With regard to her previous obstetric history it may be noted that in No. 13 the first pregnancy (seven years before) ended in the birth of a normal living

female infant; in No. 14 there had been one previous healthy child; in No. 12 there had been several other children, none of whom had been deformed; and in No. 11 there had been seven earlier male births.

The pregnancy which resulted in the birth of a mylacephalic fœtus was, as has been said, always plural—usually twins, but once triplets. It is not always stated at what time the gestation ended; but in Nos. 14 and 15 it was at the end of the sixth month, in No. 12 at the seventh month, in No. 9 at the eighth month, in No. 4 at the full time, and in No. 16 it terminated as "an abortion." In Trestrail's case (15) it was stated that the mother was frightened by a parrot in the early weeks of her pregnancy, and that her abdomen was larger than was natural for the term of gestation arrived at. In No. 9 there was œdematous swelling of the legs, the abdomen was very tense and painful, and respiration was hindered; there was in this case hydramnios of the sac containing the mylacephalic fœtus. In No. 14 also there was hydramnios and shortness of breath; the hydramnios affected the sac of the normal twin.

In nearly every case the monster was expelled after the birth of the normal twin (Nos. 1, 2, 3, 4, 5, 6, 13, and 15); but in Nos. 9 and 14 it was born first, in No. 11 the twins were expelled together, and in No. 7 (the triplet case) the malformed fœtus was said to have been born along with two others. Labour seems usually to have been rapid; in No. 9 there was some hæmorrhage, necessitating the removal of the placenta; and in No. 15 the normal twin presented by the feet, the membranes were ruptured, the child extracted, and the mylacephalus and placenta were removed shortly afterwards. No mention of the puerperium was usually made; but in No. 13 it was reported that the mother made a rapid recovery.

Paternal and Family History.—In no case is there any information forthcoming on the health of the father; but in No. 15 it is stated that he was twice married, that his first wife had a dead-born child, and later a living one (both well formed), and that it was the second wife who gave birth to the twins, one of which was mylacephalic. The absence of a family history of malformations was noted in No. 14.

Infantile History.—The mylacephalic fœtus was incapable of a separate existence, but the co-twin was not uncommonly born alive. The latter was stated to have been alive at birth in Nos. 1, 2, 9, 12, 14, and 15; in Nos. 3, 4, 5, 11, 13, and 14 it was simply described as normal or well formed; and in Nos. 6, 8, 10, and 15 there were no details at all. It lived for half an hour in No. 15, for two hours in No. 14, and for some days in No. 12; in No. 9 it was weakly at birth, weighed 2 lbs. 4½ oz., and measured 14 inches in length, and died in twenty-four hours. The sex of the co-twin was not always stated; it was a female in Nos. 4, 5, 9, 13, and

15; both were females in No. 7 (triplets); and it was a male in No. 11. It could be recognised that the mylacephalus was a female in Nos. 2, 4, 9, and 15, and a male in Nos. 5 and 10; but there were no genital organs in Nos. 1, 3, 6, 7, 11, 12, 13, and 16. It will be noted that in No. 5 the monster was stated to be a male, whilst the co-twin was a female; if this were really the case, Siebold's observation would be almost unique, but an inspection of the drawing of the monster leaves it doubtful whether the so-called penis was truly that organ. Further, the description of this specimen had been lost, so that on the whole it does not seem justifiable to assert that it formed almost the only exception to the law that monochorionic twins are of the same sex.

Morbid Anatomy.

I. Of the Fœtus.

(1.) *General Form and Dimensions.*—In its general form the mylacephalic fœtus is ovoid (Nos. 7, 9, and 12), or oval (Nos. 3 and 16), or kidney-shaped (Nos. 5 and 13), or pyriform (No. 6), or irregularly quadrilateral (No. 2), or is like an elongated cone curved on its own axis (No. 11). In most of the described specimens the anterior surface showed the insertion of the umbilical cord, and was irregular on account of the presence of elevations and grooves, whilst the posterior surface was smooth; the upper end was usually rounded, and sometimes carried some hairs; the lower showed in some cases the traces of external genital organs (usually female), and to it were attached one or two rudimentary lower limbs.

The fœtus mylacephalus is always small in size; in No. 4 it measured 7·5 cms. by 5 cms.; in No. 14, 8 cms. by 4 cms.; in No. 6, 9 cms. by 5 cms.; in No. 3, 10 cms. by 7·5 cms.; in No. 15 it was 14 cms. in length; in No. 12 it was from 15 to 17 cms. in length; in No. 13 it measured 20·5 cms. in length, 12 cms. in breadth, and from 7·5 to 6·5 cms. in thickness; in No. 7 it was 22·4 cms. by about 14 cms.; and in No. 2 it measured about 36 cms. (?) in length. It weighed 115 grammes in No. 14; nearly 8 oz. in No. 2; 13 oz. in No. 12; 36 oz. in No. 7; and 1220 grammes in No. 13.

(2.) *External Appearances.*—The whole surface of the mylacephalus is usually covered with skin, which is normal in appearance, and often carries numerous lanugo hairs. It will be convenient to describe first the trunk, and second the rudimentary extremities.

(*a.*) *The Trunk.*—In No. 1 the fœtus was said to show no external fissures or openings; but from the abdomen protruded a tortuous piece of intestine with a mesentery which was adherent by bands to the placenta; there were traces of external genitals. In No. 2 there was a hair-covered elevation at the upper end, and

at the lower were the vulva and anus; and there was a thin umbilical cord inserted on the anterior surface, which was of a whiter colour and more smooth than the posterior aspect. Possibly the small opening on the anterior surface in No. 3, which lay between the rudimentary limbs, represented the little-developed genital organs. In No. 4 there was a marked groove on the right side of the abdomen, and at the lower end was a vulvar cleft, with two labia majora. The upper end of the fœtal mass in No. 5 showed some hairs anteriorly, and there was in this part a reddish patch about 4 inches in circumference; on the anterior surface was a protruding sac, probably hernial, beneath which was the insertion of the cord; below this again was a penis-like body and another small projection. On the narrow upper end in No. 7 was a cutaneous projection covered by black hairs. In Vrolik's specimen (9), above the entrance of the cord, were seen four fleshy projections, one of which was covered with hairs, whilst at the lower end there were found, on separating the legs, the female genital organs, the urethral aperture, and the anus; there were labia majora, but no minora. On the cephalic end in No. 10 was a serous cyst directed anteriorly, which carried some hairs; in the middle of the ventral surface was the umbilicus; and at the lower end was a prepuce, with a sulcus beneath it. In No. 12 the anterior surface showed a marked transverse furrow where the cord was inserted, and to the left of this was a small circular depression (regarded by the observer as possibly an eyelid), from which grew hairs that were longer and more numerous than on other parts of the body. In No. 13 the fœtus was roughly divided into three parts by two transverse grooves: the upper or cephalic portion carried four little projections on the right side, which may have been rudimentary sense organs; in the middle or thoraco-abdominal portion was a kind of spurious umbilical hernia, on each side of which, and near to the groove marking it off from the pars cephalica, was a small pit or depression; and the lower or pelvic part had a rudimentary contorted limb attached to it. The specimen described by Graetz (14) was covered with hairless skin, and showed on its anterior surface one deep and two shallow furrows, and a penis-like body. Trestrail's specimen (15) had a dull pink colour externally, and fine hairs could be detected on the skin, but only by means of a lens; the umbilical cord was inserted on one side, and there was a small umbilical hernia; and below the cord-insertion was a deep natural cleft, at the bottom of which could be seen a clitoris, with its prepuce, and below it a circular opening leading into the rectum. In No. 16 there was a trunk (not bilaterally symmetrical), on the anterior surface of which was a transverse groove, and above it the attachment of the cord; below the groove was a nipple-shaped body, with a circular furrow round it; on the right side of the upper end were two rounded

sessile projections, and immediately in front of these were five conical bodies (fingers and thumb?); and on the posterior surface were some hairs.

(*b.*) *The Limbs.*—The extremities were in every case deformed and rudimentary. There were two lower limbs in Nos. 1, 2, 3, 4, 9, 10, 11, and 14; but there was only one in Nos. 5, 7, 12, 13, 15, and 16. In Nos. 2, 6, and 16 there were traces of one upper extremity, and in No. 12 there were two rudimentary arms. In No. 2 the lower limbs were much deformed; the right was the larger, and had four rudimentary toes, whilst the left had two; and the arm was bent at the elbow, and had two wart-like fingers. In No. 3 there was a small projection "like a finger;" one foot had one large and three small toes, the other, which was very imperfect, had one large and two small toes. The lower limbs in No. 4 were stumps about an inch in length, ending in rounded points, and having no feet. The lower limb in Nos. 5, 7, 12, 13, 15, and 16 had a somewhat constant appearance; it was sometimes turned upwards on the anterior aspect of the trunk, and at other times was stretched out; there were three toes in No. 5, two without nails in No. 12, two in No. 16, and four in No. 15. In No. 9 there were two lower limbs, of which little more than the feet projected externally; the right foot had five toes (two of which were united), and the left only three. In No. 12 there were two cutaneous folds, representing the upper limbs; these showed no fingers, and contained neither bone nor cartilage. In No. 14 the left lower limb was represented externally by a foot with two toes, and the right by a shapeless projection, also with two very imperfect digits.

(3.) *Internal Appearances.*—The greater part of the mylacephalic fœtus consists of œdematous connective tissue, with here and there some lobules of fat. The connective tissue lies beneath the skin, and varies somewhat in thickness; it was ⅛-inch thick in No. 16, and 3 cms. in No. 12. In Trestrail's specimen (15) the true epidermis was thin and the hair follicles were ill developed; the thick layer of subcutaneous tissue formed a dense stratum lying immediately below cutis, and a very loose one in its deeper part; it contained many elastic fibres, and the connective-tissue cells were large and oval, with big nuclei; and the whole structure was essentially embryonic, with a somewhat atrophied epidermis. Similar appearances were found in No. 14. In other cases the subcutaneous tissue was described as of a homogeneous fleshy texture (3), as a dense cellular tissue (6), a soft homogeneous cellular tissue with no fat (9), a fibrous tissue with serum in its meshes (11), a soft œdematous connective tissue traversed by fibrous bands shutting off islands of fat (12), and as an œdematous connective tissue in No. 13. Sometimes beneath the subcutaneous tissue was a muscular layer, and there were usually some muscles attached to the bones of the rudimentary limbs; but in No. 10 it was stated that no voluntary muscles were found. Both the sub-

cutaneous and muscular strata were well supplied with vessels, but in only a few cases could these be injected.

With regard to the *viscera* of the mylacephalus, the most commonly met with were the intestine and one or both kidneys. Some intestinal coils were described in Nos. 1, 2, 3, 5, 9, 10, 11, 12, 13, 14, 15, and 16; these consisted of the whole of the large and a part of the small intestine in Nos. 9 and 15, and of the duodenum and jejunum in No. 5. Sometimes they lay in a sort of peritoneal sac; and it was noted in Nos. 5, 9, 13, and 14 that they contained greyish porridgy meconium, greenish-grey in one part in No. 13. A stomach (imperfect) was described in Nos. 2, 11, and 14, and a portion of the œsophagus in No. 2. There was a urinary bladder in Nos. 2, 5, 9, and 10; and there were two ureters in Nos. 2 and 9 (of which the left alone opened into the bladder in No. 9), and one in Nos. 10 and 15. Two kidneys were found in Nos. 5, 9, and 10; but one only was present in Nos. 12 and 15. There was a double kidney in No. 14. In No. 2 the right kidney and the liver were possibly fused to form one organ. In No. 9 the right kidney was large and the left small. The uterus was found in No. 9, and in No. 2 were a uterus and tubes, but no ovaries; there were testicles in No. 10. Something resembling a liver was seen in Nos. 2, 13, and 14. All the other organs, including the heart, lungs, thymus, thyroid, spleen, etc., were absent, or were at least not mentioned. There were some traces of a spinal cord in Nos. 7 and 11, and in the latter was also a brain-like mass, which did not, however, show any nervous elements. A small brain was described in No. 14. Nerves were found in some cases (Nos. 2, 9, 13, 14, 15, and 16); these were usually the lumbar nerves and those supplying the lower limb. In No. 10 the sympathetic ganglia and nerves were described.

The *skeleton* was usually represented by some vertebræ, by a pelvis, and by the bones of one or both lower limbs (Nos. 1, 2, 9, 10, 11, 12, 13, 14, 15, and 16). In No. 14 there was a small cranial capsule. In some instances (*e.g.* No. 10) all the vertebræ were present, and in No. 7 there were 24, in No. 2, 19, and in No. 14, 15; but in most cases there were only a few lumbar and sacral bodies to be found, and these were sometimes fused together or otherwise deformed. Some of the pelvic bones were noted in Nos. 1, 2, 3, 7, 9, 10, 12, 13, and 15; but usually one os innominatum was better developed than the other. The pelvis was well formed in No. 14. There were 11 ribs on the right side and 12 on the left in No. 2; 7 on the right and 4 on the left in No. 16; 7 on the right and 8 on the left in No. 14; probably all the ribs were present in No. 10; and there were 2 ribs in Nos. 6 and 9. The sternum, clavicles, and scapulæ were found in No. 2; but these were absent in No. 10. Some bones of both the lower limbs existed in Nos. 1, 9, and 10; of both the upper limbs in No. 2; of one lower limb in Nos. 3, 11, 12, 13, 15, and 16; and of one upper

extremity in No. 6. In all these cases the limb bones were usually deformed or imperfect. Rudiments of the sphenoid and lower jaw were described in No. 10.

II. Of the Placenta, Membranes, and Cord.

In the descriptions of mylacephalic fœtuses, little or nothing is said concerning the placenta, membranes, and umbilical cord. It may, however, be concluded that the placenta was single, for in Nos. 3 and 9, in which it is stated that there were two after-births, it is probable that there existed a vascular connexion between the two. In No. 7 (the triplets case) there were two placentæ, but one of these was common to the mylacephalus and to one other fœtus. In Nos. 2, 4, 6, 12, 13, 14, and 15 it was distinctly stated that the placenta formed one mass. The chorion was probably always single and the amnion double, but details are wanting.

The cord of the mylacephalus was usually thin, but in No. 4 it was described as very thick; it contained two arteries and one vein in Nos. 9 and 16; and one artery and one vein in Nos. 3, 4, 11, and 12. In No. 15 the cord of the monster joined that of the co-twin, and both were inserted together into the placenta. Details of the course of the vessels inside the body of the fœtus were seldom stated; but in No. 3 they were described as passing to the os innominatum; in No. 9 one artery went to the right kidney and supplied the left also, whilst it joined the other umbilical artery by a communicating branch; in No. 10 a large venous trunk, joined by renals and intercostals, was found in the neighbourhood of the spine; and in No. 11 was an aorta, with carotid, innominate, and iliac branches.

General Characters.

1. The fœtus amorphus mylacephalus is always the product of a plural conception (twin or triplet).

2. The co-twin is usually normal, and is almost always born first; with one doubtful exception (5) it was always of the same sex as the monster (when the latter possessed genital organs).

3. Very few general conclusions can be drawn as to the clinical details of these cases, but it would seem that the pregnancy usually terminates prematurely.

4. The mylacephalus forms a more or less rounded skin-covered mass, with the external indications of one or more deformed limbs.

5. The anterior surface is usually irregular, and gives attachment to the umbilical cord; a coil of intestine often projects into the root of the latter. The upper end sometimes carries hairs, and the lower has usually the rudiments of lower limbs hanging from it.

6. The most constant viscera are some coils of intestine, one or both kidneys, and the bladder. In no specimen was a trace of the heart found. The greater part of the fœtus is composed of œdematous connective tissue and fat.

7. The skeleton usually consists of a more or less defective spinal column, of the bones of one or more limbs, and occasionally of some of those belonging to the thorax and pelvis.

8. The placenta is probably always single or at least fused, and the cord of the monster usually contains only one artery and one vein.

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MEETING IV.—FEBRUARY 14, 1894.

DR A. H. FREELAND BARBOUR, *President, in the Chair.*

I. The following gentlemen were elected Ordinary Fellows of the Society:—F. M. Graham, L.R.C.S. & P. Ed., Medical Mission Dispensary, Cowgate, and R. Hoggan, M.B., C.M., Montebello, Joppa.

II. *Professor Simpson* showed—(1.) An EXOMPHALIC FŒTUS sent by Dr Glanville Morris of Staneley, with a history of the case, which was read at a later stage of the meeting.

(2.) A FŒTUS WITH ANENCEPHALY AND SPINA BIFIDA, sent by Dr Lewis Morgan of Tonypandy. It had been produced by a woman 39 years of age, of nervous constitution, who had been married at the age of 19, and had already had eight healthy children and two miscarriages. This last pregnancy had terminated at seven and a half months, and at the labour about a gallon and a half of liquor amnii escaped.

(3.) A RIGHT-SIDED DERMOID OVARIAN CYSTOMA with twisted pedicle—the torsion being a left-twist, as Dr Hermann Freund had shown to occur normally in right ovarian tumours.

(4.) A HYDROCEPHALIC FŒTUS, sent by Dr Veitch, who found the arm presenting, and turned the child. The head was widely distended, but it burst when traction was applied to the limbs, so that it was extracted without much difficulty.

III. *Dr Haultain* showed an OVARY measuring $2\frac{1}{2}$ inches by $1\frac{1}{2}$, removed for pain, from a patient aged 31. On section it showed very distinctly several evident types of new growth, viz., an early multilocular cystoma, a small papillary cyst, and an area of white fibrous tissue (fibroma), all of which were situated in the cortical part of the organ, the medulla and hilum being to all appearances normal. There was also a well-marked recent corpus luteum, showing that in spite of the multiple changes going on, the organ was still functionally active. He had not yet cut the specimen for microscopic purposes, as he desired the Society to see the naked-eye appearance; the microscopic characters he would demonstrate at a future meeting. Perhaps the most interesting pathological condition present was the evident origin of the papillary growth in the cortex. The opposite ovary, though quite small, showed appearances of commencing papilloma.

IV. *Dr J. W. Ballantyne* showed a FŒTUS AFFECTED WITH SYMPODIA AND HYDROCEPHALUS, which he had received from Dr John Tod of Leith. A full description would be given at a subsequent meeting of the Society.

V. THE PATHOLOGICAL CLASSIFICATION OF DISEASES OF WOMEN, WITH A PLEA FOR A REVISION OF CURRENT VIEWS.

By D. BERRY HART, M.D., F.R.C.P. Ed.

ALL writers of gynæcological text-books adopt an anatomical classification of the diseases considered. They either begin with

peritonitis and cellulitis, taking up the diseases of the other genital organs in a regular downward anatomical sequence; or, they begin with vulvar disease, and reverse the order.

The first plan is the better one, and either indeed will be our only feasible one for many years yet. The former has lost some of its value, since the importance of tubal disease in relation to peritonitis especially has become known,—since, in fact, the importance of primary peritonitis has been curtailed. But all the same we cannot at present adopt any other method without confusion, and without serious gaps in the arrangement.

The anatomical arrangement has further this supreme convenience, that it groups together the diseases of the organs compactly, and is thus the only plan of arrangement suitable for the student.

Various attempts have been made to introduce some guiding or dominant lesion in gynæcology as the *origo mali*, but these have all failed, and have done immense harm. The mere mention of the attempts of J. Henry Bennett, of the mechanical school as represented in its most extreme and logical form by Graily Hewitt, of the extreme partisans of cervical laceration or tubal disease, to make their special theory the primary fault from which almost all gynæcological disease flowed, is sufficient to call up to us the fact that they have all failed, as such, and led, when viewed in this light, to disastrous and one-sided treatment.

Yet a consideration of a pathological classification cannot fail to be of great profit to us. A knowledge of the pathology of any disease is the key to its right treatment; and a summing up of our present knowledge on this subject, even when dogmatic, should show us our great ignorance on many points, should indicate lines of research, give us a basis for ascertaining progress in future years, and enable us to approximate, however slightly, to pathological classification, with all its important bearings on prophylaxis and treatment.

I wish to answer this question of classification in a broad sense, both from the standpoint of exact pathology, and the less acurate, if not less important, basis of clinical work.

A further aim will be to discuss some pathological views critically, in the hope that opinions may be elicited whether certain long current opinions do not need careful reconsideration and revision. Without this discussion, the table would, I am afraid, be unintelligible.

I propose to group the diseases of gynæcology under the heads of—

I. Congestive: Vascular Ruptures.
II. Hypertrophy.
III. Atrophy.
IV. Traumatism.
V. Simple Inflammation.

VI. MICRO-ORGANISMAL:

Acute and chronic infective.
- *A.* Due to known microbes—
  1. Tubercular.
  2. Gonorrhœal.
  3. Actinomycotic.
  4. Septic.

Chronic infected.
- *B.* Due to microbes and their products, these causes having been apparently completely eliminated.

VII. HERNIÆ.
VIII. NEW GROWTHS.
IX. DEVELOPMENTAL ERRORS.
X. NEUROSES.

I have now, therefore, to show how that almost all gynæcological diseases can be grouped under these heads, and to consider each of the separate heads critically. The table is as follows:—

Pathological Classification of Diseases of Women.

I. CONGESTIVE: VASCULAR RUPTURE:

1. Alleged simple congestions of genital tract (?).
2. Pelvic hæmatocele.
3. Pelvic hæmatoma.
4. Ovarian apoplexy.

II. HYPERTROPHY:

1. Hypertrophy of vaginal portion of cervix.
2. „ middle portion.
3. „ supravaginal portion.
4. „ associated with lacerated cervix.
5. Simple hypertrophy of organs.

III. ATROPHY:

1. Atrophic pelvic peritonitis.
2. Parametritis chronica atrophicans, circumscripta et diffusa.
3. Superinvolution of uterus.
4. Kraurosis vulvæ.
5. Certain forms of pruritus vulvæ.
6. Senile changes in organs.

IV. TRAUMATISM:

1. Cervical lacerations.
2. Vaginal lacerations.
3. Perineal, vestibular, and vulvar tears.

V. SIMPLE INFLAMMATIONS.

Alleged simple non-specific inflammatory conditions of all genital organs (?).

VI. MICRO-ORGANISMAL AND PARASITIC:

A. ACUTE AND CHRONIC INFECTIVE DISEASES—

1. Tubercular disease of peritoneum, Fallopian tube, ovary, uterus, vagina, vulva.

2. Gonorrhœal inflammation of peritoneum, connective tissue, Fallopian tube, ovary, uterus, vagina, vulva, and its ducts. Pyosalpinx.
3. Actinomycosis of tube, ovary, and connective tissue.
4. Septic diseases: Acute peritonitis, cellulitis, oöphoritis, salpingitis, endometritis, metritis. Septic sources in cervix, vagina, vulva. Pyosalpinx. Hydrosalpinx.

B. CHRONIC INFECTED DISEASES—

1. *A group of cases where we have multiple lesions;* usually some enlargement and displacement of the uterus, with various degrees of endometritis and thickenings of an inflammatory nature, either peritonitic, cellulitic, salpingitic, or oöphoritic; cervical splits are often present.
2. Pathological versions and flexions.
3. *A group with minor single inflammatory conditions* of ovary, tube, peritoneum, connective tissue; often associated with endometritis.

C. PARASITIC—

1. Echinococci (tænia echinococci) in connective tissue, peritoneal cavity, uterus, ovary.
2. Parasitic skin diseases and pedicular irritation.

VII. HERNIÆ:

1. Hernia of uterus and appendages, singly or combined, into inguinal canal.
2. Prolapsus uteri.
3. Vaginal enterocele (anterior and posterior).

VIII. NEW GROWTHS:

A. NON-MALIGNANT.

1. *Overgrowths of normal tissue*, with or without fluid or solid products.

(*a*) *Unstriped muscle.*—Fibro-myoma of round ligament, in broad ligament, of ovary, of uterus; fibrocystic of uterus; fibro-myomatous polypi—*vide* also (*d*).

(*b*) *Fibrous connective tissue and fat.*—Fibrous growths of round ligament of ovary, of vagina. Lipomata of broad ligament, of vulva.

(*c*) *Glandular tissue*—

(1) Endometritis.
(2) Cystoma ovarii.
(3) Dermoids of ovary.
(4) Cervical and uterine polypi (mucous).

(*d*) *Vascular elements.*—Fibroids of uterus—some forms *vide* (*a*). Endometritis fungosa.

B. MALIGNANT—

1. *Sarcoma* of pelvic connective tissue; of round ligament; of tube; of ovary, uterus, vagina, and vulva.
2. *Carcinoma* of ovary, peritoneum, tube, uterus, vagina, and vulva; combinations.

C. GROWTHS DUE TO EVOLUTIONARY RELICS—

(*a*) *Morbid development of Graafian follicles.*—Cystic and dermoid ovary.

(*b*) *To remains of Wolffian body and duct, or to morbid development of germ epithelium.*—Parovarian and papillo-

matous tumours;[1] some broad ligament cysts;[1] some vaginal and cervical cysts.

(c) *Undue development of ovarian fossa.* — Ovarian hydrocele.

IX. DISPLACEMENTS OF UTERUS:

1. Inversion of uterus—*vide* (VI.) Group *B*, and (VII.).

X. DEVELOPMENTAL ERRORS:

1. Malformations in peritoneal folds: of ovary, tube, uterus, vagina, vulva. Hermaphroditism.
2. Round ligament hydrocele.
3. Allantoic cysts.
4. Hæmatosalpinx, hæmatometra, hæmatocolpos. Some forms of tubal distention. Hydrosalpinx.

XI. NEUROSES:

Hysteria; hystero-epilepsy; neurasthenia (we may have also neurotic symptoms, viz., reflex pains, some forms of dysmenorrhœa; menorrhagia).

This classification is of a general nature, as I do not wish it at present to be too minute.

I. Congestive and Vascular Ruptures.

The important question has to be raised under this division, as to how far we are justified in considering that inflammatory phenomena can arise apart from a specific micro-organismal or chemical invasion. It has been long accepted by gynæcologists that vasomotor changes might lead to flexion, then to congestion, and ultimately to inflammation. Courty works out this idea in his treatise on *Diseases of Women*, and all of us have our ideas tinged with this pathology. Yet it is a purely hypothetical pathology, and one that all recent advances are discrediting. This question comes up, however, more especially under another head (VI.).

Blood effusions—hæmatomata, hæmatoceles, and various apoplexies, are the only well-defined members of this group. How far mere chill can cause internal congestion and rupture is not well established; and at any rate one must consider disturbed menstruations, extra-uterine gestations, and operative treatment as the great cause of such.

It has been undoubtedly established, both by sectional anatomy and clinical operative work, that the division into hæmatoma and hæmatocele (*i.e.*, connective tissue effusion and intra-peritoneal effusion) is well founded.

It is still unsettled whether varix of the broad ligament is to be considered as a condition causing trouble. It is figured, at any rate by Winckel, as varicocele parovarialis.

[1] Often malignant.

II. Hypertrophy.

By this one means a hypertrophy of all the tissues of an organ or part of any organ. The best examples are found in cervical hypertrophies, whether those of nulliparæ (symmetrical) or those associated with cervical lacerations (asymmetrical). Of none of the hypertrophies can we give any satisfactory explanation, simple though the condition is. The most probable cause is in disturbed blood supply.

The secondary cervical elongations of prolapsus uteri are also not quite clearly understood.

I have seen hypertrophy of the cervix follow a case where the main blood supply of the broad ligament was cut off, the uterine arteries being intact.

III. Atrophy.

Atrophic processes are of great importance in gynæcology, and are found in almost every organ.

In extensive pelvic peritonitis, especially with much serous effusion, I have frequently seen very marked atrophy of the uterus and ovaries, and entire cessation of menstruation. A more common atrophy is, however, in the connective tissue, and, clinically, we must all have seen frequent examples of the parametritic atrophicans, so well described by Freund of Strassburg. One point to be noted about such cases is that the course of the lesion may drag over several years before it ends with premature menopause. The stages, roughly speaking, are an initial cellulitic attack, followed by dysmenorrhœa and menorrhagia. Then follow reflex nervous symptoms, neuralgiæ, and finally an amenorrhœic condition, with some atrophy of the pelvic organs. Such cases can only be advantageously studied in private practice as a rule. The well-known superinvolution of the uterus and some forms of pruritus vulvæ, as well as kraurosis vulvæ, are good examples of atrophic changes. How far pressure on vessels and nerves account for these is as yet undetermined.

IV. Traumatism.

The conditions produced here are all well known. Apart from the actual lesion resulting, this cause is important as a source of immediate infection and a possible starting-point for chronic irritation. Especially in cervical laceration we have to note the results of these in the thickening and hypertrophy of the cervix, subinvolution of the uterus, and cellulitic thickenings.

V. Simple Inflammatory Conditions.

Under this heading the important question arises, as to whether we ever have really inflammation apart from an infective cause,

i.e., as the result of mere vasomotor and other vascular changes. I do not believe we have, and yet the almost universal treatment by vascular sedatives shows how we have all accepted an unproved pathology. The tendency of all our present knowledge is, however, to seek out, in pelvic inflammatory affections, the source of the infection, and base our treatment on what we find as to that. Inflammatory conditions are the defensive processes of the tissues, and repel and neutralize the attacks of the specific organisms, of which we now have so much increased knowledge.

VI. Micro-Organismal.

This is one of the most important of the divisions, and deserves our most careful attention. It is, indeed, under this heading that the most brilliant and accurate pathological work has been done. The known microbes producing infective conditions are, as yet, the *Bacillus tuberculosis* of Koch, the *Gonococcus* of Neisser, *Streptococci*, the rare *Actinomyces*, and also the *Bacterium coli communis*. Our accurate knowledge of tubercular disease came only after Koch's great diagnostic discovery. As the result of the research of many workers, we now know that tubal tuberculosis is by far the most common form, but that it may infect peritoneum, ovary, uterus, urinary organs,—more rarely the vagina and vulva.

There are many clinical features of interest in genital tuberculosis. Cases of spontaneous cure and entire disappearance are by no means rare, although in others we get gradual invasion of other organs, and death. How this happens in one case and not in another, and how far genital tuberculosis varies from pulmonary, is not yet known.

For an interesting account of this important subject, and for an excellent *résumé* of the literature, I can recommend Williams' article in vol. iii. of the *Johns Hopkins Reports*.

The importance of *gonorrhœa* in the causation of gynæcological disease, foreshadowed by Bernutz and Noeggerath, has been demonstrated in the most marvellously exact manner. The first step was taken in Neisser's discovery of the gonococcus. Bumm's researches confirmed this, and there was added by him the theory that the gonococcus grew on columnar and not on squamous epithelium, that its spread was a superficial one, and that a gonorrhœal peritonitis could only be a limited process. These sharply defined statements have not been confirmed; and more recently Wertheim has demonstrated that gonorrheal peritonitis can be set up in white mice, that the gonococci can invade connective tissue, and that in such cases the gonococcus alone is found,—Bumm's idea of a mixed infection falling, therefore, to the ground. No better instance can be found of what bacteriology can do in the elucidation of disease, than the recent work on *Ascending Gonorrhœa in Women*.

What we know of septic diseases is in the acute stages. Any full criticism on this head would touch too much on puerperal septicæmia. It may be noted, however, that in cellulitis, ending without suppuration, streptococci have been found; and this is interesting, as showing not only the cause of the cellulitis, but also how they are destroyed by the leucocytes and their products.

Actinomyces is the rarest of conditions in gynæcology, but it has been demonstrated in various organs by Zemann, and in a recent valuable paper by Grainger Stewart and Muir in the first volume of the *Edinburgh Hospital Reports.*

In the *B* group, or what I have termed *chronic infected cases*, we have really the majority of the chronic diseases coming continually under the notice of the practitioner and specialist. It is on this group that so much theory and energy have been spent, in the attempt to get at the nature of the associated lesions, and to cure the discharges, aches, discomfort, and disturbance of function they give rise to. The *A* and *B* groups are really one, but are sharply contrasted, as in the former we have the exact scientific pathology; in the latter, dreary speculative theories, where one does not dig long without coming, in Carlyle's phrase, to water. Group *B* is the dust-heap of gynæcology, where valuables lie hid and obscured. In this group some one condition has usually been seized on as the whole malady, and with its cure the case was at an end. Whether ulceration, uterine displacement, cervical laceration—that was the disease!—you treated it with your caustic or your pessary for a few months, of course, and the patient was restored to health. Gynæcologists usually believed in these nostrums till a new method was discovered, and then they discarded their old friends with contumely.

The view of such cases that I wish to urge is this. Many are the result of a previous septic attack, minor or major. The source of infection has been the cervical laceration or the endometrium bared by abortion or labour, and the invasion of the micrococci along mucous membrane or through lymph spaces has been met by the ever-watchful tissue elements; the invaders have been captured; and in the cellulitic thickenings, or in those of the tubes and ovary, found lasting for months and years after the primary attack, one has the tumuli, as it were, that mark the old battlefield. Gradually, as these thickenings shrink, we get uterine displacements, nerve pressure, cervical ectropion, and hypertrophy, the stock cases of gynæcology.

It may be urged that I am simply substituting a chronic infected group for the ulceration or displacement series. This I do not. I merely say that in Group *B* we have a class of cases where one can see the traces of a previous infection, usually after abortion or childbirth, or unclean operative work, and that this is the group in which careful investigation is needed to determine the exact nature of such, and to enlarge Group *A*.

In such cases one gets no good by altering, or rather trying to alter, uterine position. What one has to settle is as follows:—

1. *Are the results of the previous attacks removable by operation?*
2. *Is there any source of absorption yet?*
3. *How far has the chronic endometritis or cervical laceration to do with the perpetuation of the secondary condition?*
4. *Are the results of the infection mild and likely to yield to minor remedies?*

The answers to these queries determine the treatment; and in salpingectomy, cervical operations, curetting, and massage, we have excellent therapeutic measures in suitable cases. To queries 2 and 3 any reply is as yet difficult, if not impossible. One must never forget that the rectum or bladder may be the source of the secondary inflammations.

One special dictum has now long ruled in gynæcology, viz., that operative treatment—say curetting, or cervical operations—was contra-indicated by cellulitic or tubal thickenings. It was and is believed that operative treatment would aggravate this thickened condition and light up serious mischief. I am now convinced that, in minor thickenings with, of course, no suppuration, this is a mistake, and that if any mischief arises it is due to the want of antiseptic precautions at the time of operation. I have, indeed, seen such cellulitic thickenings disappear after curetting. This heresy, as one may almost call it, is truth, I believe, but it is strong meat and liable to be abused by the inexperienced.

No view of the *B* group has hindered progress so much as that which placed the accompanying version, either anteversion or retroversion, as the main lesion. When one considers the mechanical pathology calmly, it is difficult to account for the craze. Such displacements are really secondary to inflammatory conditions or to increased uterine weight, and to give them the primary place is to convert a physical sign into a disease.

I am certain that only very few backward displacements, and those of an extreme degree, need treatment as such, and that the slackening of the vaginal vault in multiparæ renders pessary treatment unavailing *quâ* the version.

VIII. New Growths.

In regard to malignant and non-malignant tumours, our knowledge is at present hardly sufficient to enable us to catalogue them. Of the causation of any non-malignant or malignant growth we know nothing.

The ovary is the organ of which our pathological knowledge is probably most extensive, and yet we are still very far from any comprehensive knowledge of its physiology and pathology. The ovary has many peculiarities as an organ. With its structure are linked developmental traces of the Wolffian bodies and ducts, while in the apparently unnecessary number of its Graafian follicles, as

well as in the alleged hermaphrodite condition of the early fœtus, we have an apparent legacy from its evolution, complicating our comprehension of an organ already complex enough.

Our understanding of this organ and its pathological growths, specially those of a cystic nature, hangs really on a thorough knowledge of its developmental relics, and of the nature of the Graafian follicle. The great discovery by Waldeyer of the germ epithelium and its *rôle*; the division of the parts into oöphoron, paroöphoron, and parovarium; the recognition of traces of the Wolffian bodies in the broad ligaments as giving rise to extra-peritoneal cysts, so well explained by Coblenz, are all of the greatest help to the pathologist as well as to the clinician.

The mystery of dermoids is best, if not completely, understood by Bland Sutton's view, that the Graafian follicle is a mucous crypt, that mucous membrane and skin are identical in essential structure, and that we may thus get in an adenoma all the products of skin. I have thus classed dermoids and the ordinary ovarian cysts as adenomata, but have thought it advisable to place them also in a class which recognises an evolutionary and developmental factor.

It must be kept in mind that much has yet to be done in ovarian pathology, and that the views I have described are much contested. An excellent *résumé* of the views as to papillomatous tumours, and a valuable critique, will be found in Williams' article on "Papillomatous Tumours" in the *Johns Hopkins Reports* I have already alluded to in speaking of tuberculosis. Williams believes the origin from Wolffian relics possible, and gives the ingrowths of the germinal epithelium and the Graafian follicle itself as sources. This brief allusion to ovarian pathology must convince all of the great field of investigation yet open.

X. Neurotic Conditions.

In the abundance and accuracy of local investigation, which I would not for a moment decry, there is some risk of the bearings of the nervous organisation and neurotic conditions in women being overlooked.

One point has specially struck me, viz., that in some cases the patient is apt to mislead one. This is specially true of the results of treatment in the *B* group of cases. In such the patient often bears testimony to the good treatment has done her, and the gynæcologist often brings this forward as evidence of the value of the treatment the patient has undergone. We have all heard of the magical relief afforded by the use of a pessary, although I have found in some of these cases that the displacement was really unaffected. Then, again, a patient may suffer or appear to suffer from some diagnosis, and have her suffering relieved when she is assured that the diagnosis has been a wrong one.

In neurasthenic women a severe form of dysmenorrhœa may be complained of, and yet pass off completely under rest and change of scene, without any local treatment. I have seen such cases, where removal of the appendages was considered necessary, yield to the necessary rest and quiet the patient really required. In all such it is imperative to ascertain by local examination that no gross local lesion exists, and if this be the case, and a history of overwork be found, the line of treatment is clear.

There is no greater mistake than considering hysteria as having any cause in genital conditions. This disease is really a functional one of the nervous system, and must be treated as such.

Pathology usually, but not always, suggests etiology and prophylaxis. When most perfect it is equivalent to etiology. The best instances of this are in septic cases, but they are less perfect in almost all the other heads I have given.

I now wish finally to point out that our greatest advances in pathology have been made since the operative era of gynæcology. It is the operator's specimens that have cleared up the vexed question of tubal conditions, and the freshness of the tissues removed is a *sine quâ non* for microscopical work.

Bacteriology has also furthered our knowledge tremendously, although some of it has been extreme in the wild demands it has made as to antisepsis.

What I have already advanced in regard to group *A* in (VI.), and what it has taught us as to antiseptics, is magnificent proof of this.

Within the past fifteen years, therefore, gynæcological pathology has passed from much hasty clinical error to careful scientific methods, and it behoves all teachers to see that careful examination is now made, in the light of modern methods, of all the valuable material so plentiful and so often neglected, and that no reverence be given to those of the past views which are based merely on hasty and crude speculation.

Professor Simpson thought Dr Hart's paper was one of the greatest interest, and of quite exceptional value. There was great room for improvement in our views in various directions as to the pathology of the pelvic organs, and Dr Hart's paper would stimulate effort and guide the workers. The range of material brought forward was so large that it was difficult to discuss it fairly. It might almost be regarded as a synopsis of pelvic pathology. If he (Professor Simpson) might offer any criticism of Dr Hart's classification, he would say that it was too etiological to serve as a guide for teaching, or for a practitioner to keep in view who had to deal with the treatment of gynæcological cases. In classifying uterine atrophy, for example, it might as well have been classed under Class VI. *B* as under Class III., and it seemed to him a simpler way of coming upon this condition to follow a scheme

that dealt successively with the different anatomical elements of the sexual apparatus. Then, again, if the proposed scheme implied that the practitioner was to disregard all displacements of the uterus that could not be registered under VI. *B*, it would certainly lead to disappointment. For there were retroflexions of the uterus that in and of themselves, without any concurrent micro-organismic process, gave rise to such a definite and grave symptom as sterility, and the symptom disappeared when the uterus was simply replaced and kept in position. He (Professor Simpson) had seen too many cases of this sort to be prepared to have a condition that was sometimes congenital relegated roughly to the gynæcological rubbish-bin. Dr Hart's scheme laid great stress on the influence of micro-organisms in the causation of pelvic disease. This was only right in this bacteriological era, when so much light was thrown upon morbid processes by the study of micro-organisms and their products. It was of the utmost importance that their influence should be clearly traced in the sexual organs, and they must always have a prominent place in pelvic pathology; but probably Dr Hart did not intend his scheme to be regarded as final.

Dr Haig Ferguson said he was sure the Society was very much indebted to Dr Hart for his valuable and suggestive paper. He did not think the classification was one at all suitable for teaching purposes, as it would tend to hopelessly confuse the student. The great value of this ætiological classification was the prominence given to micro-organisms as the primary cause of many pelvic diseases in women. He did not think this had been sufficiently insisted on hitherto either in teaching or in practice, and its importance was unquestionable.

Dr Haultain thought that Dr Hart made a great deal too much of the septic origin of Group VI. *B*, and he could not admit that some of the enlarged uteri which were displaced were due to septic causes, but more rather to altered circulation and consequent congestion. It might, therefore, be rather classed in the congestive group, if this had not been described as giving rise to rupture. Doubtless micro-organisms played a large part in the diseases of women, but their *rôle* as a cause of displacement seemed somewhat exaggerated. The paper was interesting from its novelty, and valuable as initiating a scheme of a more scientific classification of diseases of women than we at present had, and he was sure that the importance and size of the subject would give every one present plenty of food for reflection.

The President thought that Dr Hart's paper was one of the most suggestive that had been read to the Society for some time. It was a forecast of what would come to be the method of classifying diseases of women, when our knowledge was sufficiently advanced to classify upon an etiological basis. The progress of the knowledge of disease was from symptoms to pathology, and from pathology to etiology. Formerly, classification was based on symptoms;

now, it rested on pathology; when our knowledge was more complete, it would be based on etiology. The title of the paper should have been an "Etiological," not a "Pathological," System of Classification. He agreed also with other speakers that we could not do away with passive congestion as a factor in uterine disease; that, for instance, persistent retroversion of the uterus during the puerperium was just as distinctly a cause of chronic metritis as was septic infection. He thought an important point in the paper was that the presence of cellulitis should not deter us in some cases from curetting the uterus; it was rather a reason for our doing so, in order to cut off infection. A paper of this nature was of special value to us as practitioners in directing attention to the etiology of disease; although for the student, in the present state of our knowledge, we must still keep to a classification based on pathological anatomy.

Dr Berry Hart had listened with great interest to the remarks of the Fellows. He had really written the paper for his own instruction, and as an attempt—the first made, he believed—to see how gynæcological pathology would comport itself under a pathological classification. It showed, at anyrate, the great gap in our knowledge. Professor Simpson was a little irate at the scant courtesy given in the scheme to the ordinary displacements of the uterus, but there was little doubt that the importance of such displacements had been tremendously exaggerated. As he had said in his paper, this classification was not for students, but for thinking pathologists. He was glad to have the President's approval in his attempt. At first the title of the paper was "Etiological Classification," but he had altered it to "Pathological" for reasons given.

The President communicated the following paper:—

VI. EXTRA-UTERINE GESTATION.

By C. F. A. Moss, M.B. C.M., Medical Mission Hospital, Antananarivo, Madagascar.

As four cases in which the above was diagnosed have been brought under my notice during the space of little more than six months, a brief report, contrasting the conditions met with, may not be without interest. At the outset it may be well to state that from several causes it is impossible to do more than express one's *opinion* of these cases,—no corroboration that, from a strictly scientific point of view, would be satisfactory having been possible. Two cases died, but post-mortem examinations are not permitted in this country; two recovered, one with and one without operation. And even with regard to what one notices during operation, much more than the incidental glance given to parts outside the direct field of operation is required to form unimpeachable evidence of any given condition.

The history also is often very blurred, and often wanting entirely; very seldom, indeed, is it absolutely trustworthy. After this word of explanation, I trust it will be understood why the facts I have to bring forward are so vague and unsatisfactory. I may also add, that we find gynæcological complaints common among natives of this country; and among the rest the preliminary conditions of chronic peritonitis and chronic inflammation in the genital tract, which one is accustomed to accredit with the possibility of extra-uterine gestation, are very widespread in their occurrence.

Of the four cases I wish to speak of, two illustrate the earlier phenomena met with; two went on to full term or over: in this order they will be recorded. Of the first two, one was diagnosed as a case of intra-peritoneal rupture, and was fatal; the other, as of extra-peritoneal rupture, and recovered.

CASE I.—For notes of this case I am indebted to Mr Fenn, who was called into consultation. The patient was a multipara, aged about 25. She had not been pregnant for four years. She noticed amenorrhœa for three months, and coincidently a swelling appeared, distinctly towards the right side. She considered herself pregnant. Her health was fairly good, but slight pains were occasionally felt in the pelvis. After three months had passed, she was seized with sudden faintness, and the swelling disappeared; very little external hæmorrhage occurred. For a week the faintness continued, and she was confined to bed. On the seventh day what appeared to be a piece of decidua was passed. On the eighth day Mr Fenn saw her, and found her nearly collapsed, with pulse rapid and thready, and with temperature not raised. On percussion the abdomen was tympanitic, but in both iliac fossæ there was dulness. The vagina and uterus were found on examination very soft, and their temperature was raised. In the fornices there was a boggy feeling, but no hardness. On the evening of that day she died. The diagnosis was made of an extra-uterine gestation, probably in the right Fallopian tube, which ruptured about the usual time, giving rise to attacks of severe internal hæmorrhage; and these, and possibly also the intervention of peritonitis, brought about the fatal result.

CASE II.—The second case was admitted to the Medical Mission Hospital at Análakèly, complaining of fever and diarrhœa, and a hard mass in the lower part of the abdomen. She had had eight pregnancies. The first child only is living; the rest were abortions, still-born, or died soon after birth. The last was born a year ago. There is a history of syphilis. After missing one period she thought herself pregnant, and found a swelling appearing on the right side. She was seized with sudden faintness and loss of blood. This was followed by fever. For a week she had much pain in the pelvis, and felt faint. Swelling increased in the

abdomen, was first soft in character, and then hardened. There was much diarrhœa. It was about three weeks after the onset of these symptoms that she was brought into hospital.

On vaginal examination the cervix was found driven right against the pubes, and the anterior fornix was obliterated. The os externum was found high up and directed anteriorly. In the posterior fornix was a large mass, rounded and hard, which projected into the vagina. In both lateral fornices was a hard mass, which seemed cord-like in parts The lower part of the abdomen was occupied by a hard mass extending up to just below the umbilicus, and from one iliac region to the other. The upper outline was irregular, but rounded; in the middle line was felt a firm round mass of the shape of the fundus uteri. In each iliac region there was a large rounded projection bulging out towards the anterior abdominal wall, and fading off at the sides, perfectly smooth in outline, with the exception of one spot high up on the right side, which felt like a hard cord going out from the middle line. The right side was distinctly harder than the left. The whole swelling was slightly movable, and on bi-manual examination the movement was felt to extend through the whole of the effusion.

The bowels for some days were only moved by enemata, and scybala came away; there was no diarrhœa after she came in. After a few days' use of the Pulv. Glycyrrhizæ Co., the action of the bowels became natural. The right treatment appeared to be of an expectant character; hot fomentations and injections were used, and a mixture containing potas. iodid., liq. arsenicalis, and potas. bromid. was administered.

Two weeks after admission the swelling had slightly but perceptibly diminished; the rounded mass in the middle line had decreased, so that its upper level was about half-way between the umbilicus and pubes, and was considerably below the rest of the swelling.

Three weeks after admission the upper limit of the whole abdominal swelling had fallen to four fingerbreadths below the umbilicus. The general shape was unaltered. On vaginal examination the cervix was still jammed against the symphysis pubes, but the posterior projection was almost entirely absent.

Four weeks after admission the swelling could only just be detected above the brim. The mesial mass was just above the pubes, and directed slightly to the left. On vaginal examination the cervix had regained its normal position. A hard rounded mass was still felt through the posterior fornix, but no longer projecting into it at all.

The temperature on admission was 101° F.; on the fourth day it fell to normal; from the sixth till the twenty-second day it varied between 99° and 102° F. She left hospital on the thirty-sixth day.

This case is but suggestive of Fallopian tube gestation; but the symptoms and physical signs, while undoubtedly pointing to pelvic hæmatocele, warrant, I think, the interpretation of the cause as extra-uterine gestation, especially if the enlargement of the uterus be considered, and its more rapid decrease in size as compared with that of the lateral swellings.

Of the remaining two cases, both of which were operated on, the first presents a history of early rupture of a tubal gestation and of subsequent growth; of the second no history of such rupture was forthcoming.

CASE III.—The patient was admitted to the Análakèly Hospital in August 1889, with the statement that she was seven months pregnant, and that she suspected that miscarriage was imminent. On examination the os was found dilated to about the size of half a crown; just within it the cervix was hard and rough all round. There was no pain, and there was no discharge of any kind. The next day a little blood and a few pieces of membrane-like débris came away from the rough cervix. No history was given of abnormal symptoms during the pregnancy; nothing being suspected, no leading questions were asked. The woman complained of constant pain, not severe, about the epigastric region—an extremely common symptom here referred to as pain "at the mouth of the heart." This was relieved by stomachic remedies. She did not miscarry, but left hospital in September, before labour was due, as the hospital was then temporarily closed.

In December we saw her again at the Norwegian Mission Hospital, in consultation. At that time the pregnancy would be advanced to twelve months.

The following history had been elicited, and was given by Dr Borchgrevink:—Age over 30; one child born many years ago; syphilis at 17, some time after the birth of that child. Menstruation since then had been normal, with the exception of one slight attack of dysmenorrhœa. A year ago she suffered from severe pain in the lower part of the abdomen, with rigors. This was relieved by fomentations. Menses then stopped (about December 1888), and she suffered from one or two attacks of pain, and from constipation; and she also passed some blood per vaginam. One day—she cannot remember when—she was taken suddenly giddy and faint while at stool, and the abdomen became very tense. Soon after some dark blood was passed per vaginam. Constipation followed, and after the passage of much wind the abdomen appeared to decrease in size very much. Enlargement on the right side continued. At the end of five months she felt movements, which she thought excessive. There were vomiting and epigastric pain. The movements ceased in September, after she left Análakèly.

On examination the vagina appeared shortened; the anterior

and posterior and right lateral fornices were depressed by a rounded doughy swelling, evidently situated on the right. The os was slightly open and rough. Per rectum the rounded mass to the right was very distinct. The abdomen was considerably distended by a movable object; in the right iliac fossa it was felt very hard, as if bony; and in the right hypochondrium was a small roundish, hard mass, evidently bone, and reminding one of a knee or elbow. Abdominal section was recommended, as the diagnosis of extra-uterine gestation had been made, and the woman was feverish, thin, and getting very low-spirited.

Dr Thesen, who was in charge of the case, operated. An incision was made in the middle line from umbilicus to pubes. A perfectly smooth cavity being opened into by the incision, it was concluded that the peritoneum had been reached. On each side, however, quite near the incision, a sac containing the gestation product was found adherent to the abdominal wall. With trocar and cannula a quantity of dark olive-green fluid was removed from the cyst, which was taken to be the liquor amnii. The skin incision was then enlarged to just above the umbilicus, and the sac wall opened. The child's hairy scalp was found immediately under the incision, and the child was removed and the umbilical cord ligatured. Many adhesions attached the fœtus to the sac wall; these were readily broken through, and collections of fluid thus opened into. The placenta was found adherent in the lower part of the sac, but was readily removed without any hæmorrhage. From its position it appears to have been the object felt to the right on vaginal examination. The sac was thick-walled, and appeared to have a recess on each side. The uterus was felt through its wall anteriorly in the middle line, and slightly enlarged. The sac was washed out with perchloride of mercury solution, stitched up, and a drainage-tube inserted, and the abdominal wound was also stitched up as far as the tube. The dressings were iodoform, oiled silk, and salicylic wool. For four days the temperature was between 101° and 103° F., but then sank to normal. There was a little pain on the second day from blocking of the drainage-tube. By the thirteenth day she was able to sit up; the discharge, however, continued copious, purulent, and occasionally offensive. A sinus remained for some months, but eventually healed.

This case, being apparently the first of the kind operated on here, occasioned a considerable amount of interest.

It appears to have been a case of rupture into the broad ligament of a pregnancy in the right Fallopian tube, growth of fœtus, with probable stripping-off of the peritoneum; the incision probably opened into the mesial tube of peritoneum, as described by Hart and Carter, and suggested by Tait. Thus the operation, if performed laterally, would probably have been an extra-peritoneal one.

CASE IV.—The fourth case was admitted to Análakèly Hospital on June 9, 1890, with the statement that she was in labour, and that the "placenta" had come away, but the child was not yet born!

She appeared a healthy woman of about 28 years of age. This was her first pregnancy, and it had advanced to about full time. She could give no account of abnormal symptoms during her pregnancy, and even leading questions failed to elicit anything at all calling for remark. She stated that she went into labour on the 6th instant (three days before admission), and experienced pain at the lower part of the back, and in front also. On the 7th the movements of the child ceased, and about that time there was passed what was thought to be the placenta. It appeared to have been membranous, nearly the size of the palm of the hand, thin and foul, and was evidently the decidual membrane of the uterus. There was no other discharge of any kind.

On vaginal examination the parts were extremely soft; the cervix uteri did not project at all from the vaginal roof; the os was dilated only so as to admit the tip of the middle finger, and immediately within it a rough soft mass was felt on the left side. The smell was very offensive. No evidence was obtained of any part presenting, or of the fœtus being inside the uterus.

On abdominal examination the enlargement was found to be chiefly from side to side, and on percussion there was dulness up to the level of the umbilicus. It was stated that there had been a decrease in the size of the abdomen since the commencement of labour. On palpation the parts of the fœtus could not be distinctly felt. Auscultation revealed nothing.

A tent was ordered, but by the next day there was no change in the dilatation of the cervix; there was pain at and below the umbilicus. The patient had vomited five times; pulse and temperature were now normal. The uterine sound was passed for over 2 inches. Barnes's bags were then introduced, but caused no appreciable difference in the dilatation of the cervix. Further discharge had occurred of shreds, extremely foul smelling, and among these were some translucent villous-like bodies resembling small white currants. The temperature was 101° F., and pain continued.

The diagnosis of extra-uterine gestation was made, as a result of the consideration of all these facts; and on account of the patient's distress and of the temperature, it was decided to operate the next day. The patient was meanwhile taken to another house, specially cleansed and prepared.

On the 12th, therefore, abdominal section was performed; and I have to acknowledge the kind assistance of Mr Fenn in the conduct of the case, and of Dr Thesen also at the operation.

On examination under chloroform, a hard, rounded mass was felt in the anterior fornix, freely movable, and readily got between the hands on bi-manual examination. With the finger in the uterus

there was felt to be a large hard mass on the right and anteriorly; and the left wall of the uterus inside was rough, the rest smooth. The bladder was emptied.

After scrupulous care in cleansing, a small exploratory incision was made in the middle line between the pubes and umbilicus. On nicking the peritoneum a dark mass of clot was seen inside, and a small quantity of fluid of a very dark colour escaped. The incision was enlarged above and to the left to the level of the umbilicus, and below to near the pubic symphysis. Running parallel with the middle line, and just a little to the left, was the umbilical cord, lying among the clots. Following it up, the fœtus was felt. The head was to the right of the incision and at its upper limit, the vertex being directed towards the anterior abdominal wall. The body appeared curved first downwards and then upwards to the left, with its anterior surface directed anteriorly. A small part of the omentum covered it in one place, and on lifting this aside, the body of the child was removed.

It was a female child, well nourished, and apparently only recently dead; the epidermis was beginning to peel off. Crossing at about the middle of the incision, and below the child's body, was seen a coil of large bowel passing transversely and close to the surface, the umbilical cord intervening between it and the anterior abdominal wall.

After the removal of the child the fingers were carried along the cord to the placenta, which was found stretching from side to side at the lower part of the abdomen, and immediately in contact with the anterior abdominal wall. Its upper edge was nearly midway between the pubes and umbilicus. The cord was attached on its anterior surface. At each side the placenta was firmly attached, specially on the left. The middle part was free, with the exception of its lower edge, which was connected by a thin membrane with the parts immediately below it, so that on introducing one finger in front of and one behind the placenta, they were only separated by this thin membrane. The uterus and broad ligaments lay posterior to the placenta and unattached to it, except possibly where the infundibuliform ligament and pelvic peritoneum coalesce.

The question as to whether the child was entirely free or enclosed in a sac naturally interested us; no sac was discerned, and the appearances of parts at the operation, viz., the omentum over a part of the child, the large bowel immediately below it and in intimate connexion with the child, and the situation of the placenta just over the uterus, seemed to us strongly to point to its being free.

Far out in the right broad ligament there were felt three rounded masses about the size of a mandarin orange, and hard; a little blood was withdrawn from these by the hypodermic needle. A good deal of dark fluid was removed from the pelvis with sponges, but no bleeding point appeared anywhere. No fluid

resembling liquor amnii was seen; there was only the dark fluid like blood.

The upper part of the incision was then closed and the cavity drained by two drainage-tubes at its lower limit. Iodoform was dusted on, and the dressings were oil-silk, salicylic wool, and gauze bandage. In the evening the vagina was plugged with antiseptic tow. The temperature was 102°·2 F., and the general condition fair. The bowels, however, had been moved.

Next day (13*th*) one drainage-tube was removed, and the wound further stitched up under chloroform. Also the rough membrane felt in the uterus was removed with the finger, and the surface was cleansed with pure carbolic acid introduced on the dressed wound. The patient had had a restless night in spite of a sleeping draught, and the breath that morning was noticed to be very foul, the teeth and lips dry, and the conjunctivæ rather yellow. Pulse, 132; respirations, 32; temperature, 100°·8 F. There was a little improvement during the day, and a good deal of dark blood oozed from the wound on the 14*th*, but there was no offensive smell.

On the 15*th* she was listless, unconscious at times, and the urine was occasionally passed involuntarily. Pulse, 120; respirations, 17; temperature between 99°·4 and 100°·4.

16*th*.—She was unconscious, passed everything involuntarily, and although the upper part of the wound looked well, there was a putrid odour from the lower part. Pulse, 114; respirations, 24; temperature sank to 97°·8.

17*th*.—The condition being unchanged, it was decided to endeavour to remove the placenta, which was done by undoing one or two stitches, and by gentle traction on the placenta. It was extremely fœtid. There was then seen a cavity bounded above by the bowel previously mentioned, and apparently quite cut off from the rest of the peritoneal cavity. It was freely washed out, and all the shreds of adherent placenta removed. The edges of the lower part of the incision were freshened and partly stitched up, and the cavity was stuffed with iodoform gauze. That afternoon she seemed better and more comfortable; the appetite was still good; hiccough, which had been present in the morning, disappeared, but the unconsciousness continued.

18*th*.—The wound was found perfectly odourless, but the patient had developed pneumonia, and the temperature had risen to 101°·6 F. In spite of appropriate treatment she sank, and died during the morning of that day.

I have related as fully as possible the details of this case, in spite of the knowledge that much of the treatment is open to criticism, for it appears to me to present points of considerable interest.

All danger in the operation might possibly have been avoided if we had waited the usual term of several weeks before performing the abdominal section, and contented ourselves at the time with

merely clearing out the foul membrane from the uterus, and treating the various symptoms as they arose.

In attempting to arrive at an explanation of the case, one is met at the outset by the want of any history that could possibly point to the rupture of a Fallopian tube gestation. Symptoms may, for all that, have been present, but put down to a transient cause and summarily forgotten, or else considered as too unimportant to mention.

From the observations made at the time of operation we should have had no difficulty in diagnosing the situation of the fœtus as intra-peritoneal and free among the abdominal viscera, were it not for the possibility of there being a very thin-walled cyst adherent to those viscera and escaping our observation. As before mentioned, the appearance of the omentum, bowel, uterus, and broad ligaments, and the position of the fœtus and placenta apparently in one cavity with them, would point to the fœtus being free and not enclosed in a sac. There was also nothing seen to lead to the conclusion that a secondary rupture had occurred into the peritoneal cavity, unless the presence of blood and clot were sufficient to prove this.

The presence of a possible sac receives some weight, however, from the condition seen at the operation for removing the placenta, when the cavity in which fœtus and placenta had been seemed separate from the rest of the peritoneal cavity; no other part of the bowel than the transverse portion alluded to was seen at all, and none protruded into this cavity. Again, the thin membrane felt below the placenta may have been continued, one layer passing up the anterior abdominal wall on to the transverse bowel, and from that posteriorly to join another layer which might be supposed to pass backwards, cover the uterus and broad ligaments, and pass up the posterior wall of the abdomen.

Without the possibility of a post-mortem examination, and of the making of careful sections, it is difficult to arrive at any definite conclusion with regard to the exact relations and the history of this case.

The President said—on the motion of Dr J. W. Ballantyne being carried, "That a vote of thanks be sent to Dr Moss" —that he would gladly convey to Dr Moss the thanks of the Society for his interesting communication. He thought the second case, in which the fœtus was found in the abdominal cavity, was similar to one described by Dr Webster in his Thesis on *Ectopic Gestation*, and which he describes as tubo-peritoneal. He did not agree with Dr Moss that there would have been any advantage in delaying operation, but thought that the placenta should have been removed at the operation.

VII. *Prof. Simpson* communicated the following paper by *Dr*

Glanville Morris on NOTES ON A CASE OF LABOUR WITH EXOMPHALOS OF THE FŒTUS:—

Mrs H., aged 30, ii.-para, residing at Tymelyn Hotel, Llanelly, was confined on September 13, 1893. Wife of an hotel proprietor. Married twice: first in February 1890, and again in January 1893.

General History.—Previous health: she has always been healthy and robust. Family health: her father is alive and well. Mother died after confinement. She has had four sisters, one of whom died of childbirth. There was nothing abnormal in the case of mother and sister.

Sexual History.—Menstruation began at the age of 16; was of the twenty-eight day type; duration, three to five days; quantity moderate. Date of last menstruation, February 13th to 17th. *Stirrage* was felt up to a day or so of her confinement.

Previous Obstetric History.—Pregnancy, one; this occurred in 1890. Labour was easy, lasting about six or eight hours; only child was born alive and healthy, but died of convulsions six months later. She has had no abortions.

Complications of Pregnancy.—She was subject to severe headaches, and intense neuralgiæ from time to time. A bloody discharge occurred at intervals from the vagina, bearing relation to excitement, fright, or violence during the ten days preceding her confinement. On the 31st of August she was frightened by some cattle; she jumped on a railing, and in four days after this she noticed a bloody discharge, which, however, was slight. Another day she was standing on a chair hanging up a picture. The chair gave way, and she fell; hæmorrhage came on again, but more fully than before. On other occasions bleeding would come on after some excitements, particularly on one occasion while she was serving at the bar. Sometimes the hæmorrhage would come on without any apparent cause.

Labour on September 13th, 1893.—Pains came on about twelve midnight. They were true in character, but recurring at long intervals, until about four o'clock, when they became severe and frequent. At this hour the midwife was sent for, who, on making a vaginal examination, ruptured the membranes, and felt a small loop which she thought was the umbilical cord.

At 8 A.M., finding her patient had made no progress, in spite of the pains being moderately severe and recurring at frequent intervals, she sent for me. On my arrival, fifteen minutes later, I made a vaginal examination and felt a loop, which I recognised as being altogether different to the feeling of a *normal* umbilical cord, but treating it as such I pushed it back. On further examination I found the os uteri was dilated to the size of a crown piece, and was occupied by a firm resisting body (the fœtal liver), with the loop (the bowel) on one side of it. Every pain was accompanied by a discharge of blood from the vagina, so I naturally concluded it was a case of placenta prævia, though I failed to recognise the

characteristic feeling described on vaginal examination in such cases.

The abdominal walls were so thick that I was unable to learn anything on palpation regarding the position of fœtal parts, neither could I hear the fœtal heart on auscultation.

Anticipating the dangers of placenta prævia, I explained to the husband that the case was abnormal, and advised him to call in another medical man. Dr Evans was sent for at 9 A.M.

After a very careful examination he agreed with me in my diagnosis, allowing that there might be some abnormal pathological condition associated with it.

The general condition of our patient was favourable. Her pulse was good; no signs of exhaustion; and there was hardly any hæmorrhage by this time, so we decided not to interfere for an hour or so.

In the meantime, being afraid of the onset of a sudden and alarming hæmorrhage, I remained in charge of my patient, while Dr Evans left, returning at 10.30 with his obstetric bag.

After 9 o'clock the pains recurred only a few times, and were very slight.

Mode of Delivery.—The patient having been anæsthetized (chloroform was administered), the process of detaching the supposed placenta was proceeded with, when it was found that the mass was adherent above to the body of the child. This being the case, it was thought advisable to lay hold of one of the lower limbs, and traction being brought to bear upon it, no difficulty was experienced in the delivery. The child was premature (eight months), and still-born, and its peculiar appearance caused us great astonishment. The placenta was easily expressed by Credé's method. The uterus contracted firmly, and the hæmorrhage was very moderate. I may also mention that the liquor amnii was small in quantity. I washed out the uterus, and ordered the nurse to use the vaginal douche with Condy's fluid three times a day for the first four days. I took her pulse and temperature twice daily, and the puerperal chart was that of a typically normal case.

The Attitude of the Fœtus.—The fœtus maintains permanently the habit which it had acquired *in utero*. The body of the fœtus is bent backwards, so that a normal ventral incurvature is replaced by a dorsal one, or, more correctly, a dorso-lateral one, as there is a twist in the spinal column in such a way that the right hip is nearly in apposition with the posterior border of the left scapula. The legs probably cross each other; the left limb (leg and foot) is much smaller than the right, which may be due to the pressure of the latter upon it (between it and the head). The forearms are flexed on the arms, and the hands are thrown back on each side of the head (the right more than the left), so that really the hands and feet are in close relation behind the occiput, the head being in the extended position.

Presentation.—This was peculiar, on account of the malformation. The extended head being the broad part of the fœtal ovoid, fitted into the broad upper part of the uterine ovoid. The soft projecting ventral mass being the narrower part, adapted itself to the lower part of the uterus, and therefore came first to present during labour.

Diagnosis.—The history of hæmorrhage and escape of blood with the pains, together with the feeling of the firm resisting mass occluding the os, made us think it was a case of placenta prævia. The presenting mass was so big that it was impossible to get our fingers beyond it so as to correct our diagnosis.

During delivery, the small intestines, having made their appearance as soon as the foot or lower extremity was outside the vagina, might easily be mistaken for a ruptured uterus.

The child was probably alive up to the day she was confined, and the cause of its death was (possibly) pressure on the abdominal organs and circulation during the labour and delivery.

The placenta became detached in the process of delivery.

The entire front of the abdominal wall is wanting from the thorax to the floor of the pelvis, so that the liver, stomach, and intestine, covered with their respective layer of peritoneum, are exposed. Is this brought about by an arrest in the development of the fœtus, or may it be due to an early morbid inflammatory process of a portion of the visceral surface of placenta? There is no anal orifice.

VIII. *Dr J. W. Ballantyne* communicated the following paper by *Dr D. D. Jennings,* New York, on THE OPERATIVE TREATMENT OF CRANIAL DEPRESSIONS IN THE NEW-BORN INFANT:—

On the 26th day of February 1893 I was called to see a child who had just been delivered by forceps. The left frontal bone was markedly depressed, presenting a concavity instead of the usual convexity. The deformity was so extreme that the father wished something to be done, at once, for its relief; but, in the absence of symptoms, I ordered delay, to give Nature a chance. Forty hours after birth, the head having assumed its normal outline, with no improvement in the depression, I operated, after unsuccessfully trying pneumatic suction, which has been successful in older children. The head having been made aseptic, a V-shaped incision was made over the centre of the depression; the periosteum was incised and stripped back sufficiently to apply the trephine. A button of considerable thickness was removed, the surrounding bone raised with an elevator, the button of bone returned, the wound closed with catgut sutures, and an antiseptic dressing laid on the head. The baby was soon quietly nursing at the mother's breast. The operation was simple, was done without an anæsthetic, and without shock; it was not necessary to tie a vessel; and the child nursed and slept well, and made an uneventful recovery.

Heretofore these cases have always been left alone, even when

symptoms were present, trusting to intra-cranial pressure and the resiliency of the bone to overcome the deformity; but these cases do not always come right of themselves.

[Boissard (*Notes et observations cliniques*, Paris, 1892) records a somewhat similar case, in which a cranial depression with fracture of the vault was remedied by the use of the elevator. The whole subject of cranial depressions and fractures in the new-born is fully discussed in Lelièvre's work, entitled *Des Enforcements et des Fractures du Crâne chez le Fœtus*, published, with a good bibliography, in 1892.—J. W. B.]

Dr J. W. Ballantyne thought that Dr Jennings was justified in the treatment he had adopted. He (Dr Ballantyne) had recently dissected several still-born infants with cranial depressions, and had found meningeal hæmorrhage under the site of the depression.

MEETING V.—MARCH 14, 1894.

DR A. H. FREELAND BARBOUR, *President, in the Chair.*

I. The following gentlemen were elected Ordinary Fellows of the Society:—J. L. Thomson, M.B., C.M., Australasian Club; George S. S. Hirst, M.B., S. Hylton, Sunderland; John Stevens, M.D., 3 Shandon Crescent, N. Merchiston; C. I. Bodon, M.D. (Buda-Pesth), 19 Rutland Square.

II. *Dr J. W. Ballantyne* exhibited, for *Dr C. B. Ker* (Crieff), a FŒTUS WITH EXOMPHALOS AND A LARGE SACRAL MENINGOCELE. The feet were also clubbed, the anus was imperforate, and the sex was not evident on external examination. The history of the case was as follows:—The mother, 28 years old, 5 ft. in height, was married nine years ago, and had had three previous confinements, of which the first was instrumental, and the last took place fourteen months ago. She has had no miscarriages, and although she has never been very strong, she has had no serious illness. She is in fairly good circumstances. During the present pregnancy (her fourth) she had no shock or worry; she last menstruated on July 10th, 1893, and was delivered on February 15th, 1894 (7th month). She suffered great pain in the back during the whole pregnancy, but worse during the last seven weeks. She has also had pain in the left iliac fossa, unlike anything she has ever had before in any of her pregnancies. At the beginning of February Dr Ker was sent for, as she had some red discharge; there was no opening up of cervix, and she was ordered to rest. A fortnight later (Feb. 15th), labour pains began at 8 A.M., and at 1 P.M. the os was the size of a shilling. At 3 P.M. the os was larger, and the head was found presenting L.O.A. The patient was very faint,

complaining of a "tearing pain" in the *right* iliac fossa, and had to go to bed. At 6 P.M. the os was three parts dilated, and the discharge contained much more blood than usual, but the placenta was not felt. Dr Ker ruptured the membranes soon afterwards, and the head at once came down to the perineum. There was no excess of liquor amnii. The head, although small, refused to come forward, and although the pains were strong and the perineum quite soft, remained in the same place for three-quarters of an hour, when forceps were applied, and it was easily delivered. The shoulders, however, remained, and some force had to be used in the delivery of them, a considerable placental hæmorrhage taking place, which was explained by the fact that placenta and infant came away together. The fœtus gave two or three gasps, but no cry, and the heart beat for fifteen minutes. The patient made a good recovery. Dr Ker had handed the specimen to Dr Ballantyne for examination, and he would report on it at a subsequent meeting of the Society. The father was crippled with sciatica, was 35 years old, and was alcoholic.

III. *Dr J. W. Ballantyne* exhibited,—(*a.*) The FROZEN SECTION OF THE PELVIS OF A FEMALE MONKEY (*Macacus rhesus*). The specimen had been kindly given him by Dr E. Coleman Moore in the early part of January, the animal having succumbed to the inclemency of the weather at that time. It weighed 1835 grammes, and measured in length from head to end of tail 50 cms., and from head to perineum 36 cms. (about 14¼ inches). It was evidently a young female, with the general characters of the *Macacus rhesus*. It was frozen, and a mesial sagittal section made of the trunk, in order to afford a means of comparison with the section of a pregnant *Macacus* described to the Society by Drs Hart and Gulland in January 1893. Attention need only be directed to the pelvis. Fortunately, the section had in this region closely followed the middle line, only in the region of the urethra the cut was a little to the right of the middle line. The three canals—urethral, vaginal, and rectal—were practically parallel with each other and with the axis of the pelvis; but just at its lower end the rectum turned sharply backwards. The vagina measured 4 cms. in length, and the urethra 3 cms. The bladder was distended with urine, and had a quadrilateral shape; its vertical diameter was 3·5 cms., and its antero-posterior 1·3 cm. The uterus had a vertical diameter of 2 cms.; its walls were very thin, so that its antero-posterior diameter was only 2·5 mms. It had neither ante- nor retroversion; it was nearly parallel to the axis of the pelvic inlet, but its upper part was directed somewhat backwards, probably on account of the distention of the bladder. The ovary, which measured 1 cm. in length, lay immediately above the level of the uterus, and had a vertical direction. The Fallopian tube also ran vertically. Behind the uterus the rectum formed a distended, nearly straight tube.

From anal aperture to the opening of the vagina measured 2·7 cms.

(*b.*) A FŒTUS WITH SO-CALLED CAUDAL APPENDAGE AND OTHER DEFORMITIES, which had been kindly handed to him for examination by Dr C. A. Butchart. The mother was a multipara; but there was no history of any abnormalities in her previous labours. She and her husband were both alcoholic. The fœtus, a female, weighed 1500 grammes, and had a total length of 38 cms., and a breadth, with the arms outstretched, of 41 cms. The length from vertex to perineum was 24 cms. The circumference of the head in the plane of the ears and mouth was 28 cms., that of the shoulders was 31 cms., and that of the trunk below the axillæ was 27 cms. The length of the arm was 16·5 cms., and of the leg 14 cms. The cranial vault was closed at the back, and also above, except in an area immediately behind and above the eyes. The spinal canal was also closed, save in the lumbar region, where the spine was seen with a marked twist to the right side. Immediately below the spina bifida was a caudal appendage 4 cms. in length and 7 cms. in circumference, with a small papule at its lower end. It was covered with skin, and seemed to consist only of subcutaneous tissue and fat. The legs were fixed in an extended position, and the feet were clubbed. Frozen sections were made of the specimen.

(*c.*) A LARGE STILL-BORN INFANT WITH INTRA-CRANIAL HÆMORRHAGES, which Dr A. T. Sloan had sent to him to discover the cause of the still-birth. The mother was an viii.-para, who in all her previous confinements had given birth to living infants. The present labour was an easy forceps case, instruments being needed on account of the head lying too far forward and not coming down well. No force was needed, as the pains were strong. When the head was born the cord was seen to be coiled once very tightly round the neck; but as the shoulders were expelled not three minutes after the head, the cord, of course, at once slackened. The placenta appeared normal. The infant, a female, weighed 3638 grammes; the total length was 51 cms.; from vertex to umbilicus was 26 cms., and to symphysis pubis 32 cms.; whilst from umbilicus to heel was 25 cms. The head circumferences were:—In O.M. plane = 39 cms.; in O.F. = 35 cms.; in S.O.B. = 33·5 cms. The head diameters were:—O.M. = 15 cms.; O.F. = 12 cms.; S.O.B. = 10·5 cms.; Bi-P. = 12 cms.; and Bi-T. = 10 cms. The circumference of the shoulders was 39 cms.; of the trunk under the axillæ, 33 cms.; at the level of the ensiform cartilage, 33·5 cms.; and at that of the umbilicus, 31 cms. The thigh measured 16·5 cms. in circumference, and the upper arm 11 cms. The head was abnormally well ossified, for the anterior fontanelle measured only 1·5 cm. antero-posteriorly by 1 cm. transversely, and there was no posterior fontanelle at all. The left parietal over-rode the right parietal, and the latter was also overlapped by

the right half of the frontal bone. There was a small bruise on the left half of the frontal near the anterior fontanelle (forceps mark ?), and on the right half of the frontal was a spoon-shaped depression in front of and slightly above the right ear. Blood was issuing from the nose. Under the spoon-shaped depression was a meningeal hæmorrhage over the right frontal lobe, and there was a considerable quantity of blood at the base of the brain surrounding the medulla oblongata. These hæmorrhages were doubtless the cause of the still-birth.

(*d.*) A LARGE PLACENTA FROM A CASE OF HYDRAMNIOS, which had been given to him by Dr Graham of the Cowgate Dispensary. The placenta weighed 68·3 grammes, measured 24 cms. by 18 cms., and had a maximum thickness of 4·5 cms. The cord was 40 cms. in length and markedly thick. The patient from whom the specimen came was a iv.-para. Her first two confinements were at the full term, her third at six and a half months, and the present (her fourth) at seven and a half months. In this labour there was considerably more than two quarts of liquor amnii, and notwithstanding the large size of the placenta, the infant, a male, was small, and died in twelve hours. Unfortunately, no autopsy was permitted. The case illustrated the fact that occasionally hydramnios is associated with, and perhaps caused by, hypertrophy of the placenta. The placenta itself had apparently a normal structure.

(*e.*) A FŒTUS WITH ANENCEPHALUS AND SPINA-BIFIDA IN THE CERVICAL REGION, which had been given him by Dr D. Berry Hart, and of which frozen sections had been made. It was a female, weighed 1240 grammes, and had a total length of 21 cms., and a circumference round the shoulders of 31·5 cms. It showed the usual anencephalic deformity.

All these specimens were examined in the Royal College of Physicians' Laboratory.

IV. *Prof. Simpson* showed a CYSTIC TUMOUR OF THE LEFT OVARY, pedunculated and twisted to the right. It had extensive adhesions to the omentum. The contents were brown viscid fluid and some degenerated tissue, remains of septa between the original cysts. The wall was thick and soft. There were two nodules on the Fallopian tube, somewhat suggestive of malignant tendency. This specimen was removed from a woman aged 29, who three months ago was safely delivered of her sixth child. She was specially "large" during pregnancy, and has since remained so, the tumour reaching to within 1½ inches from the ensiform. The vagina and cervix were noted p.v. to have assumed the senile type, and at the operation the uterus was seen to be much atrophied. The right ovary was healthy.

V. THE ELECTRICAL TREATMENT OF UTERINE FIBROIDS AND SUBINVOLUTION.

By F. W. N. Haultain, M.D., F.R.C.P. Ed., Lecturer on Midwifery, etc., Edinburgh School of Medicine.

Now that the electromania, so acute among some gynæcologists, has abated, and that its more rabid opponents have temporarily ceased from troubling, it is, I trust, possible to bring forward a practical and unprejudiced statement of some of the effects of the constant current in uterine disease, and view them in an unbiassed manner.

For this purpose I have collected a series of thirty cases treated by myself within the last three years, on which I have made accurate and careful observation before, during, and after treatment. These, I should add, have not been selected, but represent the entire number upon which this form of treatment has been adopted by me during this time.

To view the results as practically and succinctly as possible, I propose to consider the subject in the following manner:—*1st*, The pathological conditions for which the treatment was adopted; *2nd*, The method of treatment; *3rd*, The effects of the treatment; *4th*, The probable mode of action.

1. *The Pathological Conditions for which the Treatment was adopted.*—These, as the name of the paper implies, were entirely confined to disease of the uterus itself, and were marked by enlargement of the uterine cavity. Twenty-two were associated with neoplasms in the walls, and eight with a chronic inflammatory state of the mucosa,—in other words, cases of fibromyomata, and subinvolution with endometritis.

In all of the former and most of the latter the characteristic symptom was hæmorrhage, either menorrhagic or metrorrhagic, and of such severity as to give rise to anæmia of a marked character. Associated with the bleeding there was, with the endometritic cases, the other well-known symptoms of leucorrhœa, pain, pelvic weight, etc.,—while some of the fibroids were sufficiently large to cause pressure inconveniences.

The patients suffering from fibromyomata varied in age from 20 to 47 years, and in all, the growths were well marked, ranging in size from a chestnut to that of a uterus at full term. The uterine cavity varied from 3 to 7½ inches in length.

In all the cases of endometritis the uterine cavity was enlarged more than ¾ inch. It will thus be seen that in no case were symptoms alone looked upon as sufficient grounds to adopt treatment, but well-marked uterine enlargement, either associated with mural growths or endometritis, showed signs of distinct uterine disease.

This I consider a point of considerable importance, as I cannot

but believe that many so-called failures of the current in checking hæmorrhage have been due to the fact that disease of the ovaries has been the prime factor in its causation, the uterus being in some cases to all appearance healthy, while naturally in other cases it may be secondarily or simultaneously affected.

Two marked illustrations are foundation of this assertion :—

CASE I.—A young female of 17, who for two years had suffered from such severe menorrhagia that she was a confirmed invalid from anæmia, and all attempts to check the bleeding by uterine treatment had proved futile. On examination, the uterus appeared to be normal in size and position, but at either side could be felt two enlarged ovaries about the size of small tangerine oranges; these were removed with the best results, and on examination were found to be studded with small peripheral cysts like enlarged Graafian follicles, a pathological condition which, though rare, is a known cause of uterine hæmorrhage.

CASE II.—Unmarried female, aged 32, with well-marked fibroid uterus, cavity $3\frac{3}{4}$ inches, showed no improvement from her menorrhagia, etc., after thirty-five applications of the current. Removal of the ovaries showed them to be of the same nature as Case I.

2. *Method of Treatment.*—Before describing this branch of the subject I should like to state that a profound intimacy with the science of electricity is unnecessary, all that is required being a knowledge of its elements, such as the recognition of the positive from the negative pole, and the appreciation of the dangers and inconveniences of suddenly interrupting the current.

It is well, however, though by no means absolutely essential, that a more extended knowledge of the science be acquired, as by this means one is less dependent on the professional electrician, should the battery, as is its wont, cease working from some trivial cause.

In simplifying this method of treatment we are much indebted to Schall of London for his admirably complete batteries, by which the comparative novice, with the exercise of a little caution, can as competently perform the treatment as the profound electrical scientist.

The apparatus required for treatment is so well known that it hardly requires mention. Shortly it may be described as—

1. A 40-celled battery to give the current.
2. Electrodes to convey „ „
3. A galvanometer to measure „ „
4. A rheostat to regulate „ „

The rheostat is perhaps unnecessary if Schall's double collector battery be used; but for the comfort of the patient in allowing the gradual increase of the current, and also in eliminating the pos-

sibility of a sudden and severe shock from a disconnection between the cells, I consider it almost indispensable.

The electrodes I am in the habit of using are,—for the abdomen, a piece of flannel, twelve inches square, soaked in salt solution, to which is applied a small zinc plate connected to the battery; and for intra-uterine application, a platinum-pointed sound enveloped in a movable gum-elastic sheath as insulator.

The application of the current should differ somewhat in cases of fibroids from that of endometritis. In the former the interpolar action seems sufficient for our purpose, while in the latter a local action on the uterine mucosa is specially beneficial.[1]

In cases of fibroid I generally use 2 to 2½ inches of exposed metal in the intra-uterine electrode; while in endometritic cases, to gain the local action, and at the same time keep the strength of the current within the limits of being comfortably borne, all that is necessary is to slide the insulating sheath over the platinum electrode till only ¾ inch of the metal is exposed. This concentrates and increases the density of the current, and by successively applying the exposed metal to the various parts of the uterine mucosa, the necessary local action is acquired. For this purpose the carbon-pointed electrodes are specially useful.

The strength of the current used by me has never exceeded 150 milliampères, and in most of the cases treated 110 m. has been the maximum. There seems to be little or no benefit in using currents of higher strength, although 250 to 300 m. can be given, if thought necessary.

In cases of urgent hæmorrhage the positive pole should always be intra-uterine, as its local coagulative action is an important factor in its arrest.

But in fibroids not actually bleeding, and in chronic endometritis without severe hæmorrhage, negative intra-uterine electricity appears quite as efficacious as positive, and I thus have occasionally employed both alternately with beneficial results. The negative pole, when intra-uterine, seems to be less painful than the positive under like conditions, and I therefore, in nervous patients not actually bleeding, generally employ the former for the first few applications.

Occasionally, after using the negative pole in the uterus, I have noticed a slight recurrence of hæmorrhage, but this has always been easily stopped by a hot douche.

The length of time I employ for the passage of the current at each application is from five to ten minutes, and the number of applications I have found necessary has been from fifteen to thirty-five before permanent satisfactory results have been obtained. Usually it requires two or three applications of low currents before the patient can comfortably bear the full strength required,

[1] See Method of Action of Current.

but toleration is generally soon established, the applications being eventually borne without any discomfort. The applications should be regularly performed twice to thrice weekly, menstrual period included.

During the course of treatment I never advocate any particular *régime*, such as rest in bed, etc.; I rather favour attempts at increased exercise.

In no single case have I had the least suspicion of inflammation or any untoward symptom beyond the cases of cerebral congestion and excessive hæmorrhage I later describe.

3. *Effect of Treatment.*—This, for simplicity, must be considered from a threefold point of view,—1*st*, The effect on local symptoms; 2*nd*, the effect on uterine enlargement; 3*rd*, constitutional effect.

Under the first heading undoubtedly lies the main action of the current, viz., its hæmostatic power; and it is chiefly from a desire to add testimony to its great value in this direction that I have been induced to bring the subject before you.

Of the twenty-two cases of uterine fibromata which I have thus treated, fourteen were cured[1] after a course of treatment varying from fifteen to thirty applications; in four the hæmorrhage, though temporarily stopped, returned within a few months; three of these were cured after a second course; the remaining one is at present temporarily benefited, but sufficient time has not yet elapsed for me to reckon her as a cure.

Three cases proved entirely unsuccessful: in one of these I removed the ovaries with the best results, as already stated; the remaining two suffered from tumours larger than a seven months' pregnancy. They were considerably benefited during the treatment, but no permanent improvement has been obtained, though the applications have been twice repeated.

The remaining case could not withstand the pain caused by the lowest currents, and treatment had to be discontinued.

In the seventeen cases cured, the growths varied from the size of a chestnut to that of a six months' pregnancy, and in five of these polypi were expelled after applications varying from one to twenty-seven in number.

In some of the cases treated, the hæmostatic action was evinced extremely rapidly; in others it was developed but slowly. In one case the patient had scarcely ever been dry for more than a week at a time for five years; but from the day the treatment was commenced, not a drop of blood was noticed for six weeks. In other cases hæmorrhage is occasionally evidently brought on by the first two or three applications, a condition particularly to be noted where pedunculation is taking place.

[1] By cure is here meant the entire cessation of morbid symptoms for a period over twelve months from the last application of current.

Of the cases of subinvolution with menorrhagia, six cases, it was in all greatly diminished, four being cured.

In three of the cases cured, child-bearing has been re-established, after a period of sterility varying from six to fifteen years.

Another well-marked effect of the treatment in these endometritic cases is the rapid mitigation and sometimes entire removal of the pain and pelvic discomfort with which this affection is so frequently associated. This result is often manifested after two or three applications, long before any appreciable local change can be recognised. The leucorrhœa in all cases was much decreased; in six it was absolutely cured.

Effect of Current on Uterus, and *Effect on Size of Uterus*.—There can be little doubt that the current has a decided effect in reducing the size of the uterus and uterine cavity, and, as is to be expected, this result can be more satisfactorily followed in cases of subinvolution. In all of these cases which I have treated to recovery there has been undoubted diminution, and in some the decrease has been the most remarkable incident in the treatment.

In one patient who had suffered for three years, and whose uterus measured 4½ inches, the treatment (twenty-five applications) reduced the size to the normal 2½ inches. Such a perfect result, however, has been by no means uniform at my hands; the enlarged uterus, though much diminished, seldom regains its normal dimensions; in only two others did this obtain, and in these the morbid condition was of comparatively short duration, it being but twelve months after confinement when treatment was adopted.

All the cases, with one exception, had previously undergone the stock treatment of curetting and cauterization, with but trifling improvement.

The size of the uterine cavity in cases of fibromyomata being dependent, to a great extent, on the character of the tumour in its wall, whether interstitial, submucous, or subserous, must vary as regards the effect of treatment upon it, by the effect of treatment on the tumour itself, and this brings us to the much disputed question: Does the tumour itself become atrophied or destroyed?

As I wish simply to give the unbiassed results of my own practice and experience, I can only state that, of the twelve cases cured without expulsion of the growth, distinct, marked, and measurable diminution of the tumour occurred in five cases, while in the remaining cases the tumour became much harder and appreciably smaller, though not to such an extent as could be definitely measured. That this was so is proved at least in four cases, where previous pressure symptoms became entirely removed, although the tumour remained in its original situation. The diminution in the size of the tumour in two cases, on the other hand, gave rise to very severe temporary symptoms of pressure, the previously enlarged abdominal tumour, from its decrease in size, lost its pelvic support and prolapsed into the pelvis, in the one case causing complete

urinary retention, and in the other such severe cramps in the legs and pain that locomotion was impossible. In both I was able to support by means of a vaginal pessary, and thus relieve symptoms.

One of the cases of marked diminution is sufficiently interesting to demand description :—

Patient, aged 32, from Moffat, when examined on February 16th, 1891, had a well-marked uterine tumour, about the size of a five months' pregnancy, which caused such severe menorrhagia (twelve days' duration) that she had been practically bed-ridden for eighteen months; sound passed 4½ inches.

On May 14th, 1891, after twenty-eight applications of the current, she was so well that she went home; sound passed 3½ inches; period lasted five days; tumour slightly diminished.

In January 1893 patient returned to state that the abdominal swelling was entirely gone, and that her periods now only lasted three days. On bi-manual examination the tumour could be felt, about the size of a small orange, attached to the uterus posteriorly; sound passed 2¾ inches.

I last examined her in July, and was surprised to find no trace of tumour existing. The patient was in perfect health.

Constitutional Effects.—Perhaps the most striking and satisfactory result of the electrical current is the almost universal feeling of well-being which the patients rapidly manifest during their course of treatment. After the first two or three applications, the gratuitous announcement of increased vigour, both mental and physical, is most encouraging, and alone would seem almost to warrant the adoption of the treatment. The rapidity with which colour is imparted to the previously sallow cheeks, and the evidence of energy in the former listlessness, is usually at once the talk and wonder of the patient's friends.

That this of course is due to the cure of the anæmia is evident; but from the rapidity with which the result is obtained I cannot but feel that the current in some way stimulates the blood formation. That something more than the mere stoppage of the hæmorrhage is present, is to my mind clearly proved by the fact that, although many of my patients had intervals of two or three weeks during which there was no hæmorrhage, yet during these intervals they neither felt nor appeared to have gained strength in the least degree comparable to that which they manifested within a week or ten days of treatment. In fact, in one case the rapid increase in the blood proved a distinct element of danger, and as it is a striking illustration, I do not hesitate to detail it.

A lady, aged 47, a confirmed invalid for ten years through uterine hæmorrhage, came under my care in about the last stages of anæmia, her blood discs numbering 1,700,000 per cubic mill. In ten days they had increased 20 per cent., being 2,700,000, while after five weeks they approximated the normal, being 4,800,000. At this

time symptoms of cerebral congestion of an anxious nature showed themselves,—so much so that treatment was permanently suspended, and it was not till a much desired and copious uterine hæmorrhage occurred that relief was got.

Since that time to this she has been regularly unwell, the periods varying from five to seven days. Her last letter is most enthusiastic over the effects of the treatment, and she says she does not remember ever having felt so well before.

4. *The Mode of Action of the Current.*—From a practical point of view this would seem to be twofold, viz., local and interpolar.

A distinct local action on the tissues in contact with the positive electrode results is an established fact, proved absolutely by experiment. Its nature would appear to be analogous to searing,—a fine, compact coagulum being formed.

That this change on the mucosa has a decided effect in checking hæmorrhage is certain, and that it is of special value in destroying unhealthy states of the mucous membrane there can be little doubt. But, from practical experience, it seems to me that its action as a hæmostatic is of but secondary value when compared with the interpolar action of the current.

To this conclusion I have arrived from the following reasons:—

First, In but few cases of fibroids have I attempted to secure this local action on the mucosa, the electrode having been introduced in the same manner each time, and thus it is certain local contact of the electrode with the entire mucosa was improbable.

Second, In the case I have already described of marked diminution and disappearance of the tumour, the electrode was never introduced more than one inch into the cervix, for although the cavity measured 4½ inches, the pain and difficulty in passing the sound was so great that attempts to insert the electrode to the fundus were never tried.

What the exact nature of this interpolar action is, I do not pretend to say, but certainly, from experimental and clinical evidence, we are forced to concede that there is at any rate a double action,—1, On the muscle fibres, causing contraction; 2, on the bloodvessels.

That contraction of muscular fibres is an important factor in the action of the current is clinically explained from the experience of the twenty-two cases of fibroids treated, of which in five polypi were expelled after a varying number of applications of the current.

One particularly striking example occurred in the case of a young female who had suffered from severe menorrhagia for several years. Some hours after the first application of the current (60 mps.) I was sent for in a hurry, as she was suffering from great pain and alarming hæmorrhage. To control the latter

I was obliged to plug the vagina firmly, and was much surprised on the following day to find the os uteri dilated, and projecting through it a polypus of about the size of a chestnut.

The current in this case had evidently at once set up uterine contractions, and that it does so in all cases seems to me probable,—an action which offers at least one very reasonable method of explanation how such satisfactory results are obtained.

If one considers that out of twenty cases treated, five became extruded inwards beneath the mucosa, it is but reasonable to expect that a certain proportion would also become extruded outwards beneath the peritoneum, and by this means, therefore, relief from hæmorrhage would be obtained. Further, if muscular contraction of the uterine wall be caused, it is also reasonable to expect that congestion of the organ will be diminished, and thus the increased vascularity of the mucosa, which is always associated with these fibroid growths (and is, indeed, the seat of the hæmorrhage), will be to a great extent relieved. At the same time the nutrition and growth of the tumour itself will be much interfered with, from the consequent interference with its blood supply. But further, if it be proved that a marked contraction of the muscular fibres of the uterus is set up, it is but natural that a like condition will be met with in the individual muscular fibres, of which the hæmorrhagic type of these tumours are largely composed; this, therefore, would set up secondary changes in the growth itself by arresting its nutrition, and by this means the tumour would not only cease to grow, but become harder and smaller, and even in some cases, as in that which I have already described, altogether atrophy.

A further action of the constant current, as proved by experiment, is that of arresting the capillary circulation; this has been carefully noted during the passage of a weak current (1 mpère.) through the frog's web, which caused slowing and eventually complete stasis to result.

That this may be a further means by which such satisfactory results have been obtained is probable, but further experiment in this direction is necessarily required for confirmation.

Relying, therefore, on the local and interpolar action of the current, it has been my practice in cases where the mucosa was diseased (as in endometritis) to try as far as possible to insure contact between the electrode and as much of the diseased surface as possible; while in cases of fibromyomata, relying alone on the interpolar action, I have inserted the electrode in a purely haphazard fashion, contact with a fractional part of the uterine wall being alone necessary.

To draw conclusions from the results before us—

1. The constant current is of the greatest value as a uterine hæmostatic when due to small fibroids and subinvolutions.

2. It is curative, in most cases, of endometritis.

3. That it reduces measurably the size of a certain proportion

of fibroid tumours, while upon the majority it has a salutory though less decided action.

4. That its action on fibroids larger than a seven months' pregnancy is not curative, but temporarily palliative.

5. That it reduces the size of subinvoluted uteri.

6. That beneficial constitutional effects are rapidly promoted.

7. That its method of hæmostatic action is both local and interpolar, the latter being probably the most potent.

Before concluding, I beg first to remark that I purposely refrained from quoting or in any way making use of the large amount of literature already written on this subject, it having been my sole object to present only the result of my own experience in a purely unprejudiced manner. From this experience I cannot but hold that we have in the constant current a most valuable therapeutic agent in some forms of uterine disease which cannot be disregarded, and to which a fair trial must be given before more radical measures are adopted.

That it is a universal panacea in pelvic trouble, as some would have us believe, is, of course, not my contention, as I am but well aware of its occasional failure in cases apparently eminently fitted for its trial. That it has a wider beneficial influence than I have described I have no doubt, though insufficient practical results prevent me dwelling upon them.

Be these what they may, my successes in the cases I have described to you certainly justify me in the continuation of this mode of treatment in like conditions, and are sufficient to make me, as many others, deeply indebted to Dr Apostoli, to whom we owe its development.

VI. CASE OF FIBROID TUMOUR TREATED BY ELECTRICITY.

By R. Milne Murray, M.A., M.B., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, Edinburgh School of Medicine.

The following case seems to be of sufficient interest to justify my bringing it before the Society to-night:—

The patient, J. I., aged then 27, came to see me in September 1889. She is a native of Shetland, whence she had come some weeks previously. She was markedly anæmic, and suffered from slight conjunctivitis. Her periods had always been regular, but were recently scanty; and other anæmic symptoms, shortness of breath, etc., were prominent. Iron, arsenic, and some regulation of her diet put matters right in a few weeks, and I did not see her again until 20th August 1890. She had married in December 1889, and since then she had suffered considerable pain at her menstrual periods. The periods were now quite free, but not excessive; and were it not for the pain, she would have considered herself quite well at these times.

On examination I found the right ovarian region tender and fuller than normal, but nothing very definite could be made out. The cervix was small, conical, and very hard, and directed forward. Bi-manually the uterus was normal in size, but markedly anteflexed. Since her marriage she had suffered from occasional difficulty in retaining her urine, especially about the time of the periods.

On the 20th October she returned and said she had been normally unwell on the 5th, and again profusely on the 11th. On examination I found the right side somewhat more tender, but in front of the uterus there could be felt, bi-manually, a small hard tumour, apparently somewhat larger than a pigeon's egg, growing from the uterus near the fundus. This was evidently a small fibroid, and if it was there on my previous examination in August I had certainly overlooked it. I gave her some general directions, and asked her to come back in a month or two, but she did not return till 25th August 1891. Her periods for several months had been excessive and more frequent than normal, with much pain, especially after the discharge had almost ceased. About the third or fourth day a good many clots came away. She looked pale and anæmic, and had a rather pinched and anxious expression. On examination I found the cervix still very hard and pressed back towards the sacrum by a bulging mass approximately the size of a fist and of hard consistence. Bi-manually it was just above the level of the brim. It could be moved with difficulty, and not without a good deal of pain. The sound passed easily by tilting the handle well forward, and the whole mass of the fibroid seemed to lie in front of the canal. The sound entered 3½ inches.

She had great difficulty with her bladder; just before the periods she had to pass water every ten or fifteen minutes, and during the night was constantly disturbed.

I advised her to use a hot douche regularly, and to take frequent doses of ergot about the time of her periods, and for some months she seems to have got a certain amount of relief, but in March 1892 she came back saying she was worse than ever, and that she was sure the tumour was growing. A cursory examination was sufficient to prove she was right in this particular. The upper limit of the tumour was now half way between the pubis and umbilicus. Moreover, it had bulged down into the vagina, diminishing the length of the canal by about one-half. Her bladder and rectum were much impeded by the mass, and she was experiencing great difficulty in locomotion, from the pain in her back and legs.

I advised her to undergo a course of electrical treatment, but her husband declined to have his wife "experimented upon," as he put it; and when I explained that the only alternative seemed to be an operation, she herself refused to entertain that idea. As any attempt to push the tumour out of the pelvis was accompanied

by great pain, there seemed to be nothing to be done but to continue the hot water and increase the ergot.

Of the latter she now began to take 20-30 minims three times a day, for periods as long as the stomach would tolerate that amount. She continued this and the hot water till October 1892. In spite of this the hæmorrhage increased at the periods and at other times as well, and she became seriously prostrated from loss of blood. Since July she had not ventured out, as the pain was intolerable when she attempted to walk; and, indeed, the greater part of the day was spent in bed. The mass was now as high as the umbilicus, and presented a marked prominence. She judged from her clothes that it was growing more in an antero-posterior than a vertical direction. It was rather higher and a good deal more prominent than a six-months' pregnancy.

The sound was passed with some difficulty, the canal being sharply turned to the left about $1\frac{3}{4}$ inch from the os. It passed in $3\frac{3}{4}$ inches. The condition of the patient was now very miserable, and she and her husband were only too glad to adopt any suggestion. I was still of opinion that electrical treatment gave her the best chance, but the difficulty was how to get her to my rooms. However, on the 11th November she was brought there, having been carried into the cab by her husband, and the first application was made. She bore 100 M. A. (positive intra-uterine) with some difficulty. The applications were repeated on the 15th, 22nd, and 30th November, the patient each time coming and going in a cab. From the first she declared that the pains were less, and that after the third application she could move about her room with a freedom she had not felt for months. To my surprise, on the 2nd December I overtook her in Rutland Street walking from the tram car at the west end of Princes Street. She felt so well that she had come in the car, and was walking to my rooms in Rutland Square. On examination I could detect absolutely no difference in the size of the tumour, but it was much less tender on pressure from the vagina,—indeed, one felt that it could have been pushed right out of the pelvis. It is quite likely that this marked relief from pain was due to the resolution of some inflammatory adhesion or exudation round the mass. At any rate, it could not be due to the diminution to any extent of the tumour itself. The period had begun the day before, but I made the application as usual, and the period had quite ceased by the 6th. She came again on the 8th, and continued coming twice a week until the 3rd February, getting eighteen applications in all. The period appeared on the 2nd January and on the 5th February, on both occasions being quite normal in amount and duration.

She had one application on the 29th March, as she had felt some pain, which, however, readily disappeared. The tumour was less prominent both in the abdomen and in the vagina, but not so to

any marked extent. She had all the appearance when dressed of a woman six or seven months pregnant, but she said she felt quite comfortable, could move about with perfect freedom, and the bladder and rectum were acting normally. In March, April, May, and June her condition remained the same, the periods being perfectly regular. In the end of June she came to me asking if nothing could be done to get rid of the tumour. She professed herself willing to submit to any operation in order to get rid of it. I advised her strongly to rest content. She had, however, she told me, been reading about electrical treatment, and she had heard of a case where the tumour went away, and would I not go on with the treatment? I explained to her that the attempt might do more harm than good; but if she was anxious to try it, and willing to run the risks of having the periods made worse for a time, we might continue it.

On the 4th July I began the applications with the negative pole inside the uterus. She bore the pain badly, but persevered till on the 21st the period began, and on the third day the hæmorrhage was tremendous,—worse, she said, than it had ever been. She had had six intra-uterine applications. On the 25th I recommenced the positive intra-uterine application. I was struck on that day by two things:—

1. The considerable recession of the tumour in the vaginal roof.
2. The ease with which the sound entered. It was also noticed that the "rubberine" electrode lay flatter on the abdomen than usual.

She had three more positive intra-uterine applications in August, and the next period came on on the 25th, and was quite normal. She came back on the 20th October, and the whole mass of the tumour seemed distinctly smaller and much more movable.

From the 27th October to the 15th December she had twelve negative intra-uterine applications, always complaining of the pain they gave her internally, the pain continuing most of the night. But the tumour was evidently shrinking, and on the 15th December the sound passed just over 3 inches, and the base of the tumour was two finger-breadths below the umbilicus.

Various circumstances prevented the treatment being continued after this, and on the 27th January of this year she sent for me. I found her suffering from a sharp attack of gastric catarrh, apparently following a chill.

To my surprise I could not feel the tumour externally at all, and two days after, on vaginal examination, the following was the state of affairs:—The uterus lay to the right side, somewhat fixed by a short broad ligament. Bi-manually it felt like an enlarged anteflexed uterus about the second month of pregnancy, but, of course, much harder. The sound entered $2\frac{3}{4}$ inches, and nothing of the nature of a defined tumour could be felt. On bi-manual examination with the sound *in utero* the anterior wall was felt

considerably thickened, but there was no marked prominence either in front or laterally.

She has recommenced the treatment, as there seems no reason to doubt that the remaining thickening will in due course disappear.

I need hardly say that were cases like this at all common the electrical treatment of fibroid tumours would not rest under the cloud which it does in the minds of the majority of gynæcologists. But rare as such an experience may be, it is charged with suggestions of some value, of which I should like to say a word.

No doubt the first questions which will arise in the minds of many will be, "How do you account for this?" and "Why should such a change occur in the case of one and fail in the case of so many?" To the first I must answer, "We cannot tell." In our therapeutic uses of electricity we are mainly groping. What guides we have are chiefly empiric.

Thus we know that in the vast majority of uteri bleeding from a fibroid in their walls, the application of a positive electrode carrying a current of sufficient strength a certain number of times will stop the hæmorrhage in a way that no other application will. As to how it acts we have no definite knowledge, but neither have we any as to how thyroid extract cures myxœdema; yet that is no reason why we should not continue to give thyroid extract in the one case and apply electricity in the other.

If we taboo all treatment of disease which is not based on "rational therapeutics," we shall sadly cut down the resources of the physician. To say that mercury is anti-syphilitic and salicylates anti-rheumatic, does not take us far in explaining their action, but we are thankful for their action all the same. Yet among the arguments employed by those who do not use electricity in gynæcology against those who do, is that the latter cannot give a rational explanation of the results they claim. My position is, I am thankful for the result now, and content to take the explanation afterwards.

As to the second question, Why should such a result be so rare? I would venture to draw attention to two points:—

First, The mass of the tumour was in front of the uterus, and was thus traversed by the whole current when the pad was placed on the abdomen; and

Second, The treatment was continued much longer than most patients will submit to. Forty-one applications in all, extending over a period of a year, have been made in this case.

Most patients are content with relief of the symptoms of hæmorrhage and pain, which usually occurs early; and if there is no marked shrinking of the tumour after fifteen or twenty applications, they become discouraged. Probably with more patience and perseverance we should get a more frequent return.

Leaving, however, all theoretical considerations at present, two

points of practical interest in the case recorded may safely be emphasized:—

1. By means of electrical treatment symptoms of pressing urgency, which had resisted the ordinary measures of treatment, were speedily relieved.

2. In a woman of 32 a fibroid, as large or larger than a six months' pregnancy, practically disappeared after forty applications of electricity.

And with these facts before me, my faith in the ultimate recognition of electricity as a therapeutic agent in gynæcology remains unshaken.

The President regarded the two papers as a distinct contribution to treatment by means of electricity. He agreed with Dr Milne Murray that our treatment should be more empirical. The question which would be most canvassed in these papers was the diminution of the tumour; and Dr Haultain and Dr Murray had both recorded most striking cases of this. In other hands, it might be thought that there was a mistake in diagnosis, but the record of these cases by such careful observers placed the matter beyond doubt.

Prof. Simpson thought that the Society was indebted to Dr Haultain and Dr Milne Murray for the interesting observations embodied in their communications. There had been much discussion as to the value of the electric current in the treatment of uterine disease, not always conducted in the best style of controversy, and it was satisfactory to have straightforward records of cases observed by such competent authorities. Some years ago Dr Fraser Wright had laid before the Society the results of the electric treatment carried out in a series of cases in his (Prof. Simpson's) ward. In none of these cases had there been complete disappearance of the tumour, but in several there had been distinct diminution, in still more there had been early and marked relief of the local suffering and lessening of the hæmorrhages, and general improvement of the patient's health. It would be interesting to hear from Drs Haultain and Milne Murray what had been their experience in the use of electricity in inflammations around the uterus, as in some of the cases in the ward inflammatory deposits had disappeared under the application of the current.

Dr Berry Hart remarked that Dr Haultain and Dr Milne Murray had attempted a very difficult task—the relation between treatment and cure. This was specially difficult in those minor gynæcological cases where there was a tendency to spontaneous betterment, often of an astonishing nature. Both papers were able; but he thought Dr Haultain's the more enthusiastic, and that there was less optimism as to the value of electricity in Dr Murray's. This, however, was a matter of opinion. His own opinion in regard to electricity in the treatment of endometritis and fibroids was, that it was tedious and disappointing, and that it did not give

such good results as curetting or removal of the appendages. These operations had the great advantage of being done at one sitting, and of one being able to control thoroughly the antiseptics at the time. Dr Murray's case was a very remarkable one, but he himself had seen a fibroid tumour the size of a six months' pregnancy disappear without treatment, and also large hypertrophies of the uterus spontaneously cure. Many forms of treatment now exploded were once advocated because they cured. This should always be kept in mind. What one wanted to know in regard to many gynæcological cases was the proportion of cures under no special treatment, where a favourable prognosis was given, and good general hygiene enforced. He had given electricity a fair trial, and had now abandoned it without regret. He had listened with great pleasure to both papers.

Dr Haig Ferguson had listened with very great interest to both Dr Haultain's and Dr Murray's papers, and thought they were to be congratulated on the excellent results which they had obtained. He thought, however, there was a tendency to forget the good results which, in the majority of cases of subinvolution, were obtained from curetting the uterus after previous dilatation of the cervix. This method seldom failed to be successful in those cases in which it was suitable, and it was well clearly to keep in view that it was only in the comparatively rare cases of endometritis and subinvolution, where this treatment failed, that electricity would come in. In such cases, and especially in those where there was much chronic thickening of the uterine substance, electricity was of great value. As regards estimating the diminution of fibroid tumours under electrical treatment, one must keep in mind that these tumours varied in size apart altogether from treatment. Dr Ferguson had seen cases of diminution in height of as much as 2 inches from mere rest in bed and no other treatment. One possible danger of Apostoli's method Dr Ferguson had never seen mentioned, and that was the passage of the intra-uterine electrode through the uterine wall into the peritoneal cavity. In one case he had seen, the sound (though carefully and gently passed in the usual way) almost always passed through the uterine wall on its introduction. In this case, had great care not been taken and accurate measurements kept, the current might unwittingly have been transmitted through the abdominal contents,—with what result it would have been hard to say. The patient suffered no inconvenience from the mere passage of the sound through the soft uterine substance. After the phenomenon had been clearly demonstrated, however, it was judged wiser to refrain from the use of a sound in her case. The patient had had on previous days several applications of electricity, before this curious state of matters was noticed, but needless to say this treatment was discontinued.

Dr Haultain, in reply, said he was very pleased to have had his

paper so freely discussed by those who, from practical experience in the subject, were competent to do so; as a great many of the arguments against this method of treatment, both said and written, had been based upon purely theoretical grounds, the authors, in many cases, never having even deigned to give it a trial. And it seemed to him, from the bitterness with which some laparotomists assaulted this method of treatment, that they must have a certain deep-seated belief in its value, and thus feared a sensible diminution in their means of livelihood. As Dr Hart said, he (Dr Haultain) was an enthusiast; but he might say he was a converted sceptic, his conversion being due largely to Dr Milne Murray, many of whose cases of cure and improvement he had had the pleasure of seeing. Dr Hart's assertion of the cure of the patient being frequently due to imagination he did not for a moment entertain. He had too much experience to accept entirely the statements of hysterical women, and, as he had already mentioned, it was generally the patient's friends who first noticed the marked improvement in her general condition. He quite agreed with Dr Hart that tumours sometimes disappeared without treatment. Cancer of the mamma, after being verified by microscopic examination, had been known to disappear. The very rarity of these cases merited their description; but he thought because such had been known to have occurred, it would be a pity to treat all fibroids on the expectant method, specially when one got such excellent results from electricity as he had stated. As regards the cases of chronic endometritis treated, the symptoms and signs were in all well marked, and most of them had previously been curetted by most competent hands. Naturally one would never think of treating endometritis, as a rule, with electricity till the curette had been tried and failed, as in most cases curetting succeeded. Both Drs Haig Ferguson and Dr Fordyce considered there was danger in the treatment; but as far as his experience went he never had a case which gave him the slightest uneasiness. He had the pleasure of being present when the uterus was perforated as described by Dr Haig Ferguson, but this he considered a mere accident which might at any time happen during the ordinary passage of the sound. He had never met with sloughing like that to which Dr Fordyce referred. This probably was due to too high currents being used, such as 200 to 250 milliampères. How Dr Fordyce had not got better results from the current as a hæmostatic seemed quite inconceivable, as with him (Dr Haultain) failure was the exception. He must ask Dr Murray to answer Prof. Simpson as regards the effect on pelvic inflammatory deposits, as he had not given it a sufficient trial in these cases. He must again thank the Society for the interesting discussion, which he hoped might have the result of removing a deal of the scepticism which still existed.

Dr Milne Murray, in reply, said that with reference to Prof. Simpson's inquiry as to the effect of electrical treatment on

cellulitis, he had reported one case in which an extensive cellulitic deposit had been removed; and in a report on the cases he had treated within the past four years, which he hoped soon to present, he should record another in which a large mass had also disappeared under a comparatively small number of applications. He had some difficulty in understanding Dr Berry Hart's position in regard to such cases of fibroids as the one just recorded. Did Dr Hart mean to say that, in the case of a woman with a steadily increasing bleeding fibroid, which had proved obdurate to all the other remedies, we should simply say to her, "Well, some of these tumours diminish without any treatment at all," and depart? That seemed to him to be the practical outcome of Dr Hart's criticism. On the other hand, he (Dr Murray) would like to emphasize the fact that here was a woman in whom a fibroid tumour had steadily grown for many months, in spite of the fact that the hot douche and ergot had been applied without intermission, and who for nearly six months had been practically bed-rid; and yet who, in less than a month after the electrical treatment had been begun, was able to move about freely without any pains to speak of, and in whom, in about twelve months, the tumour had practically disappeared. He left such a result to speak for itself. As regards curetting, his experience differed from that of Dr Hart. He had had several cases in which curetting had failed to cure endometritis, and he mentioned one in which curetting on four several occasions had been followed by pregnancy and abortion at the third month. In less than a year after electrical treatment she had been confined of a child at term. He strongly held that electricity was a means of curing certain cases of endometritis which had resisted the most careful and skilful use of the curette. As to the dangers of electrical treatment, he would like to say that in skilful hands they were very trifling indeed. He had made nearly 3000 applications, and with the exception of the first case which came under his care, he had never any cause for the least anxiety. He did not attempt to answer Dr Haig Ferguson's query as to what would happen in the case of a sound passed through the wall of the uterus. He could not conceive that any one fit to be trusted with a sound could ever make such a blunder, and there was no doubt that the passing of the sound in many of these cases required care and skill, but that it could be accomplished without harm his experience had proved.

VII. NOTES OF A CASE IN WHICH PREMATURE LABOUR WAS INDUCED FOR CONTRACTED PELVIS (Use of Glycerine Intra-Uterine Injections and Champetier de Ribes's Bag).

By J. W. Ballantyne, M.D., F.R.C.P. Ed., F.R.S.E.

On January 15th, 1894, Dr A. King Mill of Kirriemuir sent Mrs A. to be under my care, with the recommendation that prema-

ture labour should be induced, as her last child had to be destroyed on account of the contracted state of the maternal passages.

Clinical History.—I saw Mrs A. on January 16th, and obtained from her the following clinical details. She was 42 years of age, of medium height, and showed no obvious deformity. It could be seen, however, that she had an abdominal enlargement, suggesting that she was near the full term.

She was one of a family of twelve; she had nine sisters and two brothers. Her eldest sister was living, had a large family, and had not had difficult labours. The next member of the family, a female, had had two living children and a miscarriage, and had died in a "decline." The third was the patient herself. The fourth had died in childbed from "inflammation," which came on on the second day of the puerperium, and proved fatal on the tenth. The fifth was also married, and had two of a family; and the sixth had one child. The seventh was not yet married. The eighth, a male, had died in America. The ninth, also a male, was alive and healthy. The tenth, eleventh, and twelfth were unmarried girls, of whom the eldest was 20 years old. In none of her brothers and sisters were there any signs of rickets. The sister who died in childbed had a normal labour with a living infant; but diphtheria was discovered on the second day of the puerperium, and proved fatal.

The patient herself first menstruated when 15, and was always regular. She was married when 27 years old. Her first labour was tedious, but ended naturally; the infant, a male, has since died. Her second confinement also required no interference, and the child, a girl, is still living. The third child, a girl, was born alive by means of turning, and is alive now; she was attended in this confinement and in the subsequent four by Dr Mill. The fourth labour required chloroform and long forceps; the infant, a boy, was born alive. The fifth confinement was similar. In her sixth labour, long forceps were also needed; and the child, a girl, lived only two or three hours. Concerning her seventh confinement, Dr Mill tells me that when he reached her (she lived many miles away from Kirriemuir) the head was lying at the brim and was fixed there. The pains were very severe, and the woman was nearly exhausted. Chloroform was given, and the child was broken up and delivered with great difficulty. It was a very large boy. Peritonitis came on immediately after labour, and the patient lay between life and death for a fortnight. Venous thrombosis affecting the right leg was also present, and the patient recovered in an almost miraculous manner.

I first saw Mrs A. on January 16th, when she told me that she considered herself not more than a month from the full time. Her menstrual history, however, was not very clear. She menstruated in May 1893, and did not again see anything till July 9th, when she lost a considerable quantity of blood. She had considered her-

self as pregnant, and continued to think so notwithstanding the hæmorrhagic discharge on July 9th. She did not feel "life" till the beginning of November,—the sixth month after conception if we accept the view of the mother, the fourth if we believe that impregnation did not occur till after the July hæmorrhage. She reported her condition to Dr Mill about the end of December, for she had been warned not to wait for confinement at the full term.

Condition on January 16th.—The general condition of the patient was fairly good, but bronchitic râles were to be heard over both lungs. The heart-sounds were normal, and the urine showed nothing unusual on analysis. Her appetite was good, but she suffered from troublesome constipation.

The breasts showed the usual signs of pregnancy. The abdominal enlargement, from the upper border of the symphysis to that of the uterus, measured between 6½ and 7 inches (17 cms.). Palpation revealed the presence of the fœtal head at the pelvic brim; the limbs were felt on the left side; and the pelvic extremity of the infant lay upwards at the right side. The fœtal heart was most distinctly heard in the middle line just below the umbilicus. The interspinous diameter was 9 inches, and the intercristal 10 inches. The external conjugate was a little over 7 inches, and the intertrochanteric diameter 12¼ inches (31 cms.). The vaginal examination showed that the cervix uteri was situated high up and to the front, so that it could only be felt with difficulty. It seemed as if it were jammed in between the symphysis pubis in front and something which could not be readily felt behind. I made several attempts to measure the diagonal conjugate, but was not very successful, for I could not get the cervix pushed out of the way, and, further, the promontory of the sacrum appeared to be situated at an unusually high level. On one occasion, however, and not without some pain to the patient, I managed to take the measurement of the diagonal conjugate, and found it 3 inches (7·8 cms.). The external pelvic measurements made me doubtful as to the accuracy of this observation, which of course carried with it the conclusion that the conjugata vera could be no more than 2½ inches; but subsequent measurements made during and after labour proved that it was substantially correct. The diameters within the pelvis and at the outlet were all slightly less than usual, but when it was borne in mind that the patient was only 5 ft. 1½ in. in height, these latter measurements could scarcely be called abnormally small.

From the history of the case, and from the physical examination, I came to the conclusion that the patient was approaching the end of the seventh month of pregnancy, and that she had a contraction of the pelvic brim sufficient to warrant the induction of premature labour in the interests of both mother and child. I was quite at a loss to explain the cause of the contracted brim, for it was difficult to make the history of the case and the measurements of the pelvis fit in with any of the well-known deformities, *e.g.*, the rachitic,

osteomalacic, or justo-minor; but there was no doubt about the existence of a serious degree of shortening at the brim, and the line of treatment was evident.

Progress of Case.—I continued to see her at intervals of a few days. Under treatment her chronic bronchitis greatly improved, the cough disappearing almost entirely. Some puffiness round the ankles, especially the right, showed itself, and was usually most marked in the morning; but her urine continued normal. The uterine swelling was measured from time to time, and showed a regular and steady increase; it grew at the rate of half an inch a fortnight, and about the second week of February the distance from the symphysis pubis to the uterine fundus was a little over 7½ inches. By this time, also, the bowels, which had been troublesome, were in good order. I decided to induce labour on February 15th, a month after her arrival in Edinburgh, when the pregnancy, according to our calculation, was about 220 days old.

Induction of Premature Labour.—All the usual preparations were made, an incubator was prepared for the child, and strict antiseptic precautions were taken. As there were no reasons for haste I determined to try the use of intra-uterine injections of glycerine introduced by Pelzer, and employed with success by Prof. A. R. Simpson (*Edin. Med. Journ.*, April 1893) and others. Accordingly, at 11 A.M. on February 15th, an injection of about 2 oz. of glycerine was made, by means of a syringe, through the cervix into the lower uterine segment, and a glycerine plug, extending into the cervical canal, was placed in the vagina. The cervix was sufficiently soft to allow the passage of the narrow nozzle of the glycerine syringe. At 2 P.M. the procedure was repeated, again at 4 P.M., and again at 8 P.M. Not the slightest inconvenience was suffered by the patient, and not the slightest sign of uterine action elicited. The cervix uteri was no softer than when the first injection was given and the cervical canal was no larger. An antiseptic vaginal douche was given, and no further operative interference was attempted till the following day. She did not sleep well on account of severe neuralgia in one side of the head, and nausea, perhaps due to absorption of glycerine.

On the next day I proceeded to dilate the cervix, first with Hegar's dilators, and second with Champetier de Ribes's bag. The patient was suffering a good deal from headache and bilious vomiting. Beginning with a No. 6 Hegar dilator, I gradually distended the cervical canal till a No. 12 could pass easily in. At 7 P.M., there being still no signs of labour, I introduced the empty Champetier de Ribes's bag, by means of the special separable forceps provided for the purpose, well within the os internum. On account of the previous dilatation with the Hegar's there was no difficulty in its introduction. The forceps were then unlocked, some water was forced into the bag by means of a Higginson syringe, and first one blade and then the other of the forceps was

withdrawn. I now injected six syringefuls of water into the dilator, having previously ascertained by experiment that it needed twelve syringefuls completely to distend the bag. Now, for the first time, at about 7·30 P.M., uterine action began, and soon regular pains were following one another in rapid succession. From time to time more water was forced into the bag, and the nurse was instructed to make occasional traction upon it. At midnight dilatation was complete, and when the bag was withdrawn the head could be felt lying transversely at the brim, with the occiput pointing to the right side. It could also be readily felt that we had to do with a pelvic brim greatly contracted in the true conjugate. On this account, and because the head showed no tendency to engage, although the pains were strong and regular, I determined to perform version. With the help of my friend Dr John Stevens, the patient was anæsthetized. Recognising that there might be great difficulty in the extraction of the head, I made preparations for the performance of symphysiotomy if it were required. The membranes were now ruptured, the right hand passed up on the left side of the pelvis, and the right foot of the child (which lay posteriorly) seized and brought down. The left foot was treated in the same way. During version it was recognised that the conjugata vera measured a very little over 2½ inches, that the pelvic brim was moderately roomy at the sides, and that the Champetier de Ribes's bag had most completely and effectually dilated the cervix and lower uterine segment, making operative interference comparatively easy. The extraction of the infant was proceeded with, and the arms, which had slipped up at the sides of the pelvic brim, were brought down. There was much difficulty in getting the head past the brim, but by means of prolonged traction with the right hand over the nape of the neck and the fingers of the left over the chin and in the mouth (Veit's method), the infant was extracted, the face passing over the perineum. The infant, a female, was resuscitated without much difficulty, but was manifestly feeble, and did not respire satisfactorily. It was put in the incubator and surrounded by hot bottles.

After the birth of the child the cord was tied and cut, and the placenta, which was small but had a normal appearance, was removed. An intra-uterine antiseptic douche was given and a pledget of iodoform gauze placed at the vulva. The patient, who had been very sick during labour, showed no abnormal symptoms on coming out of the chloroform. The uterus contracted well, and there was no post-partum hæmorrhage. The baby was born at 1·45 A.M. February 17th, six and three-quarter hours after the introduction of the Champetier de Ribes's bag and the induction of labour thereby.

The infant, which was weakly from the first, moaned incessantly during the night, and died at 9 o'clock on the following morning. It was 15½ inches in length, had a head circumference of 11¾

inches, a bi-parietal diameter of 3¼ inches, and a bi-temporal of a little over 2¼ inches. At the time of birth the head showed considerable compression laterally.

Puerperium.—The patient suffered from little or no after-pains, and there was scarcely any lochial discharge for the first two days; but thereafter recovery was uninterrupted and rapid. There was no trouble with the breasts, and the temperature never rose above 99° F. The following chart gives the pulse and temperature for the first ten days of the puerperium :—

Date.	Pulse.		Temperature.	
	Morn.	*Even.*	*Morn.*	*Even.*
Feb. 17.	90	80	99°	98°·6
„ 18.	75	80	98	98·4
„ 19.	76	80	98·2	98·2
„ 20.	80	80	98·4	98·4
„ 21.	80	80	98·4	98·4
„ 22.	75	80	98	98·4
„ 23.	80	80	98·6	99
„ 24.	75	78	98	98·4
„ 25.	75	80	98	98·4
„ 26.	75	75	98	98·2

Nearly three weeks after labour, during a troublesome attack of constipation the patient felt something slip down, and on making a vaginal examination I found that the uterus had fallen down below the projecting lumbo-sacral promontory and was lying in the pelvis, retroflexed. It was replaced with difficulty, and the patient may need to wear a ring pessary. It is now nearly a month since labour was induced, and Mrs A. is returning to her home in a few days.

Remarks.—The *first* point of interest in this case is the cause of the pelvic contraction. The external measurements did not lead me to expect so great a shortening of the true conjugate as was found at the time of labour; but the fact that the diagonal conjugate measured only 7·8 cms. made me suspect that I had to do with a considerable degree of contraction. At first I was inclined to think that the deformity of the brim was due to rickets; but the patient's obstetrical history (gradually increasing difficulty in successive labours), the absence of rachitic changes in the false pelvis and elsewhere, and the good record of personal and family health, made me incline to abandon this view. The obstetrical history in some ways resembled that in osteomalacia; but there were no other signs of that disease, and the pelvis certainly did not show the typical malacosteon deformation. The question of spondylolisthesis then presented itself. The patient recollected that soon after her marriage she fell down a ladder and injured the lower part of her back; for some days there was considerable bruising over the upper part of the sacrum. Further, the internal

palpation of the pelvis during labour suggested spondylolisthesis to my mind, for the finger following up the sacral curve was arrested at the promontory by an excessive and sharply-marked bulging forward of the bone at that point. On the other hand, the vertebral column was quite normal, and there was no marked sinking in of the last lumbar vertebræ. The obstetrical history of the patient, and especially the gradually increasing difficulty of the labours, along with the nearly normal length of the external conjugate, made the supposition of the existence of a simple flat pelvis difficult of acceptance. There remains the view that here we had to do with an osseous or cartilaginous tumour growing forwards from the first sacral or last lumbar vertebra, or from the intervertebral disc between them, and I am inclined to attach more weight to this theory than to any of the others. The future history of the case may serve to clear up this most interesting question.

The *second* point of interest refers to the choice of operation. The history of the patient, and the fact that in her last confinement craniotomy had to be performed, made it imperative that on this occasion some interference should take place. The patient herself was very anxious to have a living infant; but as she already had four living children, this desire was not allowed to outweigh all the others. Both Dr Mill and I were of opinion that the induction of premature labour would be the safest method of interference as regarded the mother, and would also give a fair chance of life for the infant. So both symphysiotomy at the full term and Cæsarean section were abandoned.

Third, with regard to the choice of a date for the induction of labour I was in considerable doubt. The menstrual history was obscure, but external measurements from symphysis pubis to uterine fundus led me to think that on February 15th the pregnancy was between 7½ and 8 months old, and I decided to induce labour then. Had I been sure about the accuracy of my measurement of the diagonal conjugate at that time I should have induced labour a week or ten days earlier; but I did not expect from the other measurements to find a conjugata vera of only 2½ inches. I could get no data to lead me to a conclusion regarding the menstrual cycle day, for the patient absolutely could not tell me what day of the week her menstrual flow usually began. Suspecting, therefore, a conjugata vera of between 2½ and 3 inches, I induced labour at what I judged to be about 7¾ months (220 days).

Fourth, with regard to the method of induction of labour employed, I determined, as the case did not demand haste, to give a fair trial to the use of intra-uterine injections of glycerine. I must confess that the result disappointed but did not altogether surprise me, for in two other cases of labour in which I had employed this method it had proved unsatisfactory. The glycerine injections having failed, I gladly gave a trial to the use of the

Champetier de Ribes's bag so lately described in a paper read before this Society by Dr Haultain. The result justified all that has been said in favour of this instrument. Labour pains at once followed its introduction, and the complete dilatation of the lower uterine segment brought about by its presence greatly facilitated the subsequent manual interference, and materially contributed to the successful completion of the labour.

Dr Haultain said it was gratifying to him to find that not only had Dr Ballantyne been induced to use Champetier's bag, but that the result had been so eminently satisfactory. It entirely agreed with his own experience; for since reading the results of his experience to the Society, he had had to induce labour in two cases, in both of which the bag had given the greatest satisfaction.

VII. THE THIRD STAGE OF LABOUR.

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A Clinical Research and Critical Study regarding the Mechanism of the Placental Detachment.

The study of the physiological mechanism which causes the detachment of the placenta, far from being a subject only of theoretical value which satisfies the curiosity of those who are fond of scientific investigation, presents on the clinical side features of much practical importance.

The last stage of labour, "*le couronnement de l'édifice*," a most interesting problem of mechanics, has, indeed, given occasion to a long and vivacious discussion. It was, in fact, evident that the disagreement existing on the field of theory should reflect on the clinical one, and consequently render difficult and uncertain the task of the young practitioner in the management of this stage of labour.

But if in this disagreement regarding the interpretation of the physiological process of the detachment is to be sought the true cause of the uncertainty and disagreement in practical work, what, on the other hand, might be asked, are the causes by which the knowledge of the mechanism of the placental detachment are rendered so difficult? They, it seems to me, are two: one is to be ascribed to the impossibility of observing *de visu* and in an incontestable manner the phenomenon of the detachment in the living woman; the other, it would seem, is due to what is not seldom observed in the long debates and scientific controversies,—*i.e.*, the tendency of being too hasty in limiting the attention to one cause, excluding absolutely any others. The phenomenon of the detachment of the fœtal annexa, for obvious reasons, is beyond the limit

of our direct investigation, and we are in possession of very few anatomical facts bearing on the third stage of labour, except Pestalogga's and those lately published by Pinard and Varnier. A complete study of the delivery of the placenta is therefore difficult and complex, more especially if to the difficulties inherent to the argument are added the confusion which results to him who peruses the rich and discordant literature of the subject.

In this paper I shall begin with making a critical study of the literature. After a criticism of the various theories in vogue, we shall try to give, on the basis of some clinical investigations, a correct interpretation of the physiological mechanism of the detachment of the placenta. Besides, I shall make some remarks, based upon histological investigation, regarding the layer of the decidua through which separation of the membranes occurs.

After the expulsion of the fœtus and liquor amnii there follows the third stage of labour, during which the annexa of the fœtus,—*i.e.*, placenta and membranes,—are expelled from the uterine cavity. Freeland Barbour considers this stage as a *labour in miniature*, and defines it *second labour in miniature*. This comparison, however, has not escaped Berry Hart's sharp criticism, who justly remarks that whereas in the third stage of labour we have separation and expulsion, in the first and second expulsion only occurs, if there is not taken into account the separation of membranes in the inferior segment of the uterus.

For descriptive purposes the third stage has been divided into three periods. The first one includes the placental detachment from the uterine wall; the second, the passage from the area of contraction into the inferior segment or into the vagina; the third, the expulsion from the genitals. This division is a purely arbitrary one. The placenta, in fact, in most cases during the period that it is breaking the ties which keep it adherent to the uterine wall, or in other words, whilst it separates from its insertion, is descending into the inferior segment, so that both events may occur simultaneously.

For a long time obstetricians have been divided into two diametrically opposed camps in regard to the mechanism by which the placenta is detached from the uterine wall, although such disagreement concerns more the manner of expulsion than the mechanism of the detachment. On one side stand those who believe in Baudelocque's doctrine, that Schultze claimed as his own; on the other side are all the others, who follow Duncan's theory. In these last years the subject has been the aim of new studies by renowned obstetricians. Berry Hart and Freeland Barbour of Edinburgh have put forth new theories, which it is necessary to consider in detail.

When we go back to more remote periods, from the opposite views that prevailed in regard to the management of the third stage of labour, it may easily be believed how equally uncertain

must have been the opinions then existing about the mechanism of the separation of the placenta. Whilst Hippocrates taught that the delivery of the placenta should be accomplished as soon as possible, those who followed his theory endeavouring to succeed by shaking the body of the woman, making tractions on the cord, administering emetics or sneezing powders, and ordering internal excitants; Soranus, on the other hand, opposed strenuously these methods, advising the practitioner to think more about introducing the hand in the womb and drawing out the placenta.

Such energetic means employed to finish the third stage of labour, used not only by Hippocrates and Soranus, but also in later periods from the times of Aristoteles, Ætius, Avicenna, to that of Savonarola in 1466, are but a necessary consequence of the doctrine then taught in regard to the mechanism of delivery. In fact, as it was believed that it was not the uterine contractions that caused the birth of the fœtus, but that the latter was the chief factor in birth, it was logical to hold the opinion that the expulsion of the placenta, an inert body, could not be spontaneously effected, and that therefore the interference by energetic means was necessary. It is strange that such erroneous ideas in regard to the mechanism of labour found so great a number of believers when Galenus, 161 A.D., had already taught that the fœtal expulsion is the consequence of the contractions of the transverse and longitudinal fibres of the uterus, helped by the contraction of the abdominal muscles.

In the study of the third stage of labour it is absolutely necessary, as Barbour has remarked, to distinguish from one another two distinct questions, viz., the mechanism of the placental detachment, and the manner of expulsion. This is, I think, not quite sufficiently kept in mind by those who have discussed and treated this subject.

The manner of expulsion of the placenta may vary for various reasons, among which must be marked its place of insertion, its shape, pathological adhesions, traction on the cord, and shortness of the latter. The mechanism of the detachment, and therefore the causes that produce it, must always be the same; but this mechanism is different according to the place of insertion, viz., on the body or on the inferior segment of the uterus. The insertion of the placenta on the latter is not normal; and Berry Hart's opinion that the mechanism is the same in both cases, is, I think, not in accordance with our knowledge in regard to the mechanism of labour, if we reflect on the opposite functions of those two segments of the uterus during labour,—functions that are in such a direct antithesis that a witty French accoucheur, Auvard, has defined it *a duel.*

So, whilst we admit two different mechanisms for the detachment of the placenta—*i.e.*, one natural and the other anomalous—several manners of expulsion must be admitted; but we shall return to

this point afterwards. It seems to me that Matthews Duncan fell into error when he described as a natural mechanism of the detachment what was one of the methods, perhaps the most frequent, of the expulsion of the placenta. Other authors also, in discussing the existing views regarding the third stage, considered two theories as being in perfect antithesis, viz., Schultze's and Duncan's. When, however, we read their works carefully, we see that both these observers agree in admitting the uterine contraction and retraction, and consequently the diminution of the area of insertion, as the chief cause of the detachment of the placenta. The disagreement between them is in regard to the manner of expulsion and the quantity of blood which is accumulated between the uterine wall and the placenta,—*i.e.*, the *retroplacental hæmatoma* (*retroplacentares Hämatom*). Whilst this is not admitted by Duncan, it is considered by Schultze, and especially by Ahlfeld, as a necessary factor in normal detachment.

It is necessary, therefore, before we enter on the discussion of this subject, to note, in order not to fall into erroneous interpretations, that we do not use the word "*mechanism*" in the general obstetrical sense,—*i.e.*, to indicate the successive positions which the product of the conception and its annexes gradually occupy in their passage through the pelvis. Under the title of *mechanism of the placental detachment* we mean to speak of the causes which produce it and the manner in which they act; whilst under that of *expulsion* we shall speak of the several methods by which the placenta can descend from the uterine cavity into the vagina and of the manner in which it presents at the external genitals.

The study of one chapter is quite distinct from the other.

I.

It has been said that Schultze more than Baudelocque had drawn his theory from the master of the latter, Solayres. Baudelocque, it is true, does not consider the retroplacental hæmatoma save as of secondary and incidental importance; but neither does Solayres give any more value to it. It was Schultze that first called the attention of obstetricians to the importance of the quantity of blood that constantly accumulates behind the placenta; but it was Ahlfeld who believed most strongly in the part it played in the detachment of the placenta. Schultze, speaking of the detachment of the placenta, says:—"The pains that have completely expelled the fœtus cause the uterus to diminish so much that the placenta in most parts is detached from the uterine wall. The consecutive pain and the blood that abundantly flows from the lacerated veins of the uterus push the placenta through the hole of the membranes, and it is expelled with the fœtal surface downwards." Baudelocque, about a century ago, had formed the basis of the theory which was re-established by Schultze. In fact, he spoke

of an hæmatic accumulation contained between the placenta and the uterus, which makes it swell, when the separation begins, in the centre, but he did not give to it any importance as a cause of the detachment, and he wrote, "The uterus is the chief agent, and its action alone produces the detachment of the placenta." Spaeth agrees with Schultze, but he assigns more importance to the contractions: "Under the action of the pains the uterus gradually lessens, its internal surface is contracted, and thus is completed the separation which in the precedent stage had already begun, and which smeared with blood the after-waters; commonly, the placenta separated at its centre, its fœtal surface bulging through the os uteri, until it is at last completely pushed into the vagina."

But he who most actively upheld the Baudelocque-Schultze theory was Ahlfeld. "In the normal separation of the placenta," he writes, "it is the centre that is first detached, whilst the marginal part is still firmly adherent. At the placental margin, where the *decidua reflexa* thickens, is commonly found the most marked adhesion; when diminution of the placental area of the uterine wall takes place, the centre is first detached, and then the edge, which is more adherent. The detachment may take place, the centre being pushed out towards the uterine cavity, so that there will be a hollow space (*Hohlraum*) between the uterine wall, which is contracted, and the part of the placenta that is separated from it, and this space must necessarily be filled up by aspiration. The blood that flows comes out of the decidual vessels. I have designed this accumulation by the name of *retroplacental hæmatoma*. It is a necessary accompaniment of the normal detachment of the placenta: '*Er ist ein nothwendiges attribut der normalen Placentalösung.*'"

But, besides this, it is to be noted, Ahlfeld admits another cause of the detachment,—*i.e.*, the diminished contractive power, of that part of the wall to which the placenta is attached, as a result of which the blood contained in the uterine tissue, in consequence of the active contraction of the other zones of the uterus, is forced into that part of the inner surface of the uterine wall which contains most vessels, and is less contractile,—*i.e.*, the area of insertion of the placenta. He inferred this fact from the study of a uterus cut by Porro's operation. Stratz's section of a woman who died from *eclampsia*, and Pestalozza's, may seem to confirm this view. In these the zone of the uterus where the placenta was inserted is much thinner than the rest of the uterine wall. The same thing is seen in Pinard and Vernier's recent sections.

It is known that several obstetricians—among them, besides Ahlfeld, may be quoted Leopold, Barbour, and Saenger—have made use of uteri obtained through Porro's operation for the study of this subject. It is, however, easily understood that the conditions which these observers have considered were very different from the normal conditions. Saenger, in order to avoid this error, pro-

posed in other cases of Porro's operations,—(1), to observe the uterus *in situ* and not out of the abdominal cavity; (2), that no obstacle should be made to the circulation (fingers, elastic bands, etc.); (3), that the placenta should not be touched; (4), that the process of the detachment should have been left entirely to itself; (5) that during the uterine contraction the incision should be closed by the hands. But notwithstanding all these precautions, we quite agree with Champneys that such conditions are always far from the reality.

Lemser, making experiments on rabbits, held that the separation mainly occurs on account of the dislocation of the placenta from its insertion, caused by the ascending and descending contractions of the womb; and Ryish described a circular layer of fibres, which he indicated as appointed to the expulsion of the placenta, "*ad depulsionem placentæ.*"

But the most original among all the theories put forward to explain the detachment of the placenta is Berry Hart's. He considers as one the mechanism of the placental detachment, whether the insertion be on the body of the uterus or on the inferior segment. The separation of the placenta, Hart affirms, can only occur when there is a disproportion between the placental surface and the area of insertion. Now, this disproportion does not take place during the uterine contractions, since it is demonstrated (he says) by Freeland Barbour that a diminution in the area of insertion to 4 inches does not produce the separation. It takes place instead from the *elastic recoil* that follows the contraction. On account of such recoil the area of insertion increases somewhat, and as the placenta now does not contain any more blood, or little, it does not follow the relaxing uterus; hence a disproportion between the area of insertion and the placenta occurs, which leads to the stretching of the *trabeculæ* of the spongious layer, and consequently to their rupture.

If it be asked why the separation does not take place during the first or the second stage of labour, Hart has answered that the modifications in the area of insertion,—*i.e.*, diminution during the contractions and relaxations in these periods,—would be perfectly followed by the placenta on account of the maternal and fœtal circulatory activity. During the third stage of labour, on the other hand, the fœtal circulation is stopped, and the *villi* lie close to one another, the *intervillous spaces* being much diminished. The placenta becoming, therefore, during the third stage a bloodless structure, cannot follow the increase of the area of attachment which follows the contraction. In accordance with this method of explaining the mechanism of detachment, Hart has proposed special rules for the management of this stage of labour (pp. 11–13, "Improved Method of Managing," etc.). Although seducing, however, at first sight, Hart's theory may appear, on account of its simplicity, and because it reduces to uniformity the mechanism of detachment

for different kinds of placental insertion, it is open to criticism. Barbour justly observes that, although from anatomical specimens it appears that the diminution of the area of insertion to a certain limit (4 per 4½ inches), does not produce separation, it is evident that a limit must exist, beyond which the aforesaid diminution cannot occur without separation, and it is perfectly possible, though not yet proved, that the limit of 4 per 4½ inches is near the limit where the separation begins. We might, Barbour says, make a step forward and say that such a diminution prepares the way to the separation, and it would not be correct to affirm that the detachment does not take place in the first and second stage of labour, because the fœtal circulation allows the placenta to expand, since it is often observed that the placenta remains attached in cases in which the fœtus had died before the delivery, and in which, therefore, the fœtal circulation had ceased, as has been demonstrated in the frozen sections of Schroeder and Barbour.

We said in the beginning, that while the frozen sections made in a considerable number of cases in Germany, Scotland, and Italy during the last few years, while they have thrown much light on various obscure points in the first and second stages of labour, nothing, or very little, has been added to our knowledge of the third stage. In fact, the splendid sections made by Barbour and Webster of Edinburgh, by Braune, Waldeyer, Schroeder, Winter, Chiari, Saexinger, Stratz, Benkiser, and Hofmeier in Germany, give no information regarding the detachment of the placenta. Pestalozza of Pavia has, however, published a case in which the woman was in the third stage of labour. It was, indeed, the only case worthy of mention published before Pinard and Varnier's sections. The two sections of Stratz were made on uteri removed from the pelvis, one of which was a case of placenta prævia, the other a case of *eclampsia*, and in the latter the placenta was detached inferiorly.

It was my intention to practise some experiments on animals; but on the one hand the great difficulties to procure animals of sufficient size, and on the other the fact that the results obtained from experiments on animals might not be in accordance with the conditions in the human female, led me to give up the idea. I have, therefore, preferred to study with Prof. Pasquali, in the Obstetrical Clinic of Rome, the separation of the placenta in a series of women in labour, introducing the hand into the uterine cavity soon after the expulsion of the fœtus. No doubt our manner of inquiry had not the charm of novelty, as Lemser, Schroeder, and Cohn had already made experiments in the same manner, but considering the difficulties that the subject presents in the direction of undertaking fresh methods of investigation, and remembering the disagreements in the conclusions of the aforesaid authors, we thought it worth while to repeat these experiments on the living woman.

Lemser introduced the hand into the uterus in 168 cases, and he found in 71 per cent. the placenta separated and lying inside the external os. According to this author, therefore, the separation of the placenta should be complete at the end of the second stage of labour. Next, Schroeder, experimenting in the same manner, perceived on the fœtal surface of the placenta a protuberance, its centre being directed towards the *os internum*, inverting the membranes. In cases quite normal he found the blood accumulated behind the placenta, and contained in the inverted membranes; *exceptionally he saw the placenta descend by its edge.* According to the same author, at the onset of the first pain the placenta became thicker and more protuberant.

Cohn agrees in finding the placenta thickened during the first contraction, but he found it to become protuberant in the subsequent pause; in other words, he found that it was during the relaxation of the uterus that the hæmatoma was formed.

For brevity's sake we shall not give our observations in detail, but will mention the conclusions reached, considering them in various categories according to the situation of the placenta. We shall, therefore, divide the cases as follows:—(1), Those in which the placenta was attached to the fundus of the uterus; (2), those in which it was attached to one of the walls; (3), those in which it was found already having descended into the cervix.

As soon as the fœtus was expelled I introduced my hand, folded in a cone shape, into the uterine cavity under the guidance of the umbilical cord, avoiding any traction on it. Such experiments we could easily practise, specially in those cases in which the woman was under the influence of anæsthesia (chloroform). Touching the amniotic surface of the placenta and the place of its insertion, I remained in expectation without making any movement. In those cases in which the placenta was attached to the fundus of the uterus—and they happened in the least number of cases—we perceived during the first contraction that the placenta hardened, the surface remaining rather concave; in the period of the subsequent calm it became softer, extended itself, and in the centre it was clearly protuberant. When a new contraction came on, the said protuberance, formed by the retroplacental hæmatoma, became more manifest, and gradually separating the edges and membranes from the wall, pushed the placenta downwards, so that it was expelled presenting its amniotic face forwards,—*i.e.*, as Schultze described.

It was different, however, when the insertion was attached, as in most cases it was, to the wall of the uterus below the fundus. In these cases, at the first pain the hand felt the placenta become more rigid; but in the period of the subsequent pause it was no more the centre that became prominent, but instead it was a zone of the placental tissue nearer the inferior edge. At a new pain the retroplacental hæmatoma, after having broken the attachment

of the edge, spread between the uterine wall and membranes, whilst the placenta descended in a sliding fashion, and the expulsion took place in the manner described by Duncan.

In some cases, it is to be noted, in which some adhesions must evidently have existed at the inferior edge, the hæmatic accumulation under the action of the contraction expanded itself towards the superior edge. In a case in which such adhesions were somewhat tough, the blood diffused itself over the superior half of the placenta, detaching the upper edge, so that it was expelled sliding along the opposite wall of the uterus, and with the superior edge downwards.

In other cases also in which the whole margin was adherent, the retroplacental hæmatoma made the placenta assume during the pain a greatly convex shape, so as to resemble a large watch-glass. In these cases, in spite of the lateral insertion, the expulsion was accomplished with the fœtal face downwards.

Finally, in a third class of cases, the placenta was already completely detached and lying in the cervix. These cases, however, were very rare, occurring almost always in precipitate deliveries or low insertions of the placenta.

It is evident that our clinical researches agree with Schroeder's, in that we observed the placenta thickening and hardening during the first contraction. We disagree with him in regard to the time of formation of the hæmatoma, which Schroeder affirms to take place during the first pain, and not in the subsequent pause. We rather tend to agree with Cohn, although this author undoubtedly ascribed too much importance to the weight of the placenta, whereas we believe that the mechanism of the detachment is chiefly due to the uterine contraction and retraction. The retroplacental hæmatoma is a necessary consequence of the laceration which has taken place through the vessels of the decidua, where the placenta is generally only slightly adherent; and the blood accumulation must occur during the pause which takes place after the first pain, since during the contraction the blood cannot flow through the vessels though they are lacerated. Such a blood accumulation cannot be considered but as a useful factor in the detachment; and if with Pinard and Varnier we believe that contraction and retraction are the principal causes of the detachment, it is right as well to give some importance to the blood accumulation.

Our investigations, and the theory based upon them, will doubtless be criticised by Berry Hart; but I would ask the distinguished obstetrician and gynæcologist of Edinburgh, by whose friendship I feel honoured, if it is necessary to resort to his theory, whereby he desires to establish as an ordinary occurrence what takes place only in anomalous cases,—*i.e.*, in cases of anomalous insertion of the placenta—when it is known that the uterine walls are able by their contractions to expel interstitial or submucous tumours of con-

siderable size? It should not be difficult to understand that while this occurs in the case of large and often firmly adherent tumours, there should be trouble in expelling the placental cake. Hart's theory, indeed, while showing the skill of him who has produced it, cannot be easily accepted.

Moreover, the hypertrophy and the hyperplasia of the uterine fibres during pregnancy are certainly much more favourable to my theory, in that the contractions have more expulsive power. If the placental cake were in all its points equally adherent, or, as occurs in those cases in which it is of a very small size, if it could separate all at once, then probably no retroplacental hæmatoma will be observed. But as its surface is large and its attachment to the uterine wall unequal in the various points, it happens that at the onset of the first pain the places more yielding and less firmly adherent will be detached first, whilst the adherent ones will remain firm; and from the lacerated vessels during the succeeding pause will flow blood, which will be accumulated between the placenta and the uterus. But to these considerations, and to those of Barbour in contrast to Berry Hart's theory, some others may be added.

For what reasons must we admit that a disproportion on the surface, such as that which can follow the relaxation of the uterus after the contraction, must, as Hart assumes, lacerate the trabeculæ of the spongy layer, when it is demonstrated that a diminution of the area to 4 inches does not produce it? May the slight relaxation be really compared to the remarkable and forced expansion that the inferior segment of the uterus undergoes during the dilatating period, which undoubtedly cannot be followed by the placental tissue?

We have already said that to the contraction and retraction of the uterine fibres must be attributed the mechanism of the detachment. But what is to be understood by retraction is not yet well agreed upon. The question may be asked, whether, after the pain has ceased, the organ will completely return to the first state? To us it appears more in accordance with facts, that a certain degree of diminution in volume and surface will remain.

We have here a muscular hollow organ, which at a certain moment, and for causes not yet perfectly defined, begins to contract for the purpose of delivering itself of its contents. In Pestalozza's section the uterus was caught at the moment after the expulsion of the fœtus, when no contraction has as yet occurred to start the separation of the placenta. In this case there was no sign of separation, neither of hæmatoma formation between the placenta and the uterine wall, because death caught the woman just soon after the expulsion of the fœtus,—*i.e.*, when it is even clinically known that the uterus is in a state of repose. But excluding the hypothesis of a contraction, Pestalozza says that the cause which can explain the considerable diminution of the uterus

is the uterine retraction. This retraction, which he attributes to the presence of elastic fibres, keeps the dimensions of the puerperal uterus diminished even when the contractions are not present. It then would appear logical to admit also that the action of the elastic fibres is effective during the labour gradually as the uterus is emptied of its contents.

Another question, therefore, arises, viz., Whether the retraction is quite independent of the contraction? We hold, indeed, as Barbour does, that the retraction is a consequence of the contraction; for although the former is due to the presence of elastic fibres in the uterine structure, yet on account of the great distention to which the uterine walls were subjected for no little time, their *retractile* power was, if not entirely destroyed, certainly much lessened. The inferior segment has less tendency to reduce its dimensions than the body of the uterus, and this, it seems, does not occur because the inferior segment is furnished with less number of elastic fibres than the body (at least it does not appear to have been demonstrated), but rather because during the dilating period it suffered such a distention that the power of the elastic tissue was destroyed. The same may not be said about the uterine body, which during the labour has an opposite function, and undergoes less distention.

Another of the points in controversy is that which concerns the placental portion that separates first,—*i.e.*, Whether it be the centre or the peripheral portion? Ribemont and Champneys tried to settle the controversy by some experimental researches, which, however, did not represent the physiological conditions. Ribemont used a clay placenta, which he made to adhere to an elastic disc, distending or relaxing this latter, which in the experiment represented the uterine wall; he could observe the portion that first detached. Champneys, instead, used pasteboard discs softened in water, which by means of starch glue he made adhere to little bags of elastic gum. Some of these little bags were strongly distended, the others very little. Letting the air out from the former, and blowing the latter in order to study the normal detachment, he found that in cases of placenta prævia detachment occurred always at the periphery, as Ribemont had observed. Champneys' manner of experimenting is better than Ribemont's, because the detachment can be effected gradually, and also the surface on which the placenta inserts has a curvature similar to the uterine one. However it be, it is certain, as Champneys himself noted, that such a conclusion would suppose, *à priori*, a uniform adherence of the placenta in all its points; and, on the other hand, uniform to the uterine contractibility and retractibility, which is not so.

As in most cases the placental edge is more adherent, either because the decidual tissue in that place is somewhat thicker, or because that zone is very often the seat of *infarcti*, it would appear that the separation should frequently begin at the centre. Besides

this, we hold that the place of insertion (independent of any manipulation, traction on the cord, etc.) should have also some influence on it. In the insertion of the fundus, on account of the more manifest concavity of the place of attachment, the separation must occur nearer the centre.

We are confirmed in these views by our clinical researches, in which we felt clearly prominent the centre or a zone near one of the margins, according to the seat of insertion. Ahlfeld, Spaeth, and Schroeder admit that the separation begins from the centre; also Solayres and Baudelocque. The conclusions to which Pinard and Varnier came, after having observed in one case the separation beginning from the periphery, viz., "Nous pouvons donc dire aujourd'hui: le décollement physiologique du placenta commence par le bord." These observers instead hold that the separation, beginning from the centre, is due to retroplacental hæmorrhages during pregnancy.

We shall next refer to the time of commencement of the separation. In the cases observed by us, except the very rare ones in which the delivery was a very precipitate one, we always observed the placenta still adherent immediately after the fœtus was expelled. Schroeder and Cohn observed the same thing, and these observations are supported by Pestalozza's sections. These sections, made at various parts of the placenta, show its adhesions in all its extent.

But not all authors are of the same opinion, and whilst Jacquemier, Scanzoni, Credé, Tarnier, Barbour, Hart, Charpentier, Schroeder, Cohn, Pinard and Varnier, sustain that the detachment occurs in the third period; some others, as Baudelocque, Dubois, Desormeux, Cazeux, Lemser, Spaeth, Schultze, Von Bitzen, and Ahlfeld, affirm that it takes place during the pains of the expulsive period. Schroeder held that during this period not only the endo-uterine pressure rendered it impossible, but also the fact that the area of insertion does not shrink like the rest of the uterus on account of its lesser thickness,—a fact which seems confirmed by Pestalozza's sections. Whilst in these the uterine wall at the place of the placental insertion had a thickness varying from 9 to 7 millimètres, it reached in the opposite wall 25 millimètres. Barbour and Webster's sections of pregnancy and labour show similar differences in the wall. Loret's assertion, therefore, supported by others, that the portion of the uterine wall on which the placenta is inserted is always thicker than the rest of the organ, is not supported by anatomical sections. It is believed that the blood circulation in the wall of insertion being greatly increased, the muscular fibres, on account of the great vascular *ectasia*, must undergo compression and consequent atrophy.

Charpentier contrasts also the opinion of those who hold that the detachment takes place during the second stage:—"Certains accoucheurs admettent que la placenta commence à se détacher de

la paroi utérine pendant le travail et même quelques-uns dès le début du travail. Il y a la une erreur évidente. Bien ne prouve, en effet, que le décollement du placenta débute pendant le travail. Si cela était, on devrait dans les cas où le placenta est rapproché du segment inférieur, mais cependant hors de la jour dangereuse, voir assez fréquemment du sang sourdre dès le début des contractions; or il n'en est rien, et le travail se fait sans écoulement de sang."

Pinard and Varnier affirm that the placenta is detached during the first and second period only in pathological cases. Zinnstag administered chloroform in the last pains after the expulsion of the fœtal head, and always found the chloroform in the blood of the umbilical vein. In twelve cases in which the chloroform was administered after the birth of the fœtus, he obtained a negative result in seven cases and a positive one in five.

II.

Let us now consider the question, often discussed, as to whether the placenta is expelled presenting its fœtal surface or its inferior margin.

Some—*e.g.*, Baudelocque, Schultze, Ahlfeld, Schroeder, Cohn, Ramsbotham, Champneys, Pinard, Ribemont—affirm that the placenta comes out with its fœtal face forward, and any other way of expulsion they explain as being due to manipulations practised to hasten its delivery, especially the well-known manœuvre of the Dublin School and of Credé.

Some others—as Duncan, Rigby, Lusk, Fehling, Zinnstag—on the other hand, assert that the natural expulsion takes place by the inferior edge, affirming that the other delivery is the effect of tractions on the cord, either brought about by the hand of the accoucheur, or naturally, owing to shortness of the cord at the moment the fœtus is expelled. These differences of opinion are probably due to the fact that the placenta may normally be born in both ways. In the first part of this work it was said, granting a uniform mechanism of detachment in cases of normal insertion, variations in the manner of presentation of the placenta in its birth might be found.

According to our researches, we find that in most normal cases it presents as Duncan described, *i.e.*, by the inferior edge. But, on the other hand, it is true that in some it came out with the amniotic face presenting as Schultze described. So in 75 per cent. of cases observed in the Clinic of Rome during fifteen months, the placenta was expelled in Duncan's manner, and only 25 per cent. according to Schultze's. It is obvious that the placenta, when expelled by its inferior margin, obeys the fundamental law which is so prominent in the mechanism of the labour,—*i.e.*, that the body which is expelled offers to the canal through which it must pass its smallest diameters.

I have already said that in 75 per cent. of the cases observed in

our Clinic the placenta was expelled by its edge, and in 25 per cent. by its amniotic surface. These cases were normal, and accomplished only by the natural powers. In no cases did I observe shortness or anomalous insertion of the cord. Such observations prove that Schultze's method cannot be considered as anomalous, as Duncan and Zinnstag would assume.

The infrequency of this method is easily accounted for, if we reflect on the rarity of the insertion of the placenta on the fundus uteri. There is no doubt that the manner of expulsion should be considered not so much, as Duncan and Boxall held, in relation to the mechanism of the detachment, but rather in relation to the place of the placental insertion. This fact, although already noted by Solayres, Baudelocque, Voegtti, Balocchi, and Champneys, has not been kept in due consideration. In cases of insertions on the fundus uteri or in its neighbourhood, the detachment beginning from the centre (as we observed by the hand in the uterine cavity), the retroplacental hæmatoma will bulge out the central portion of the cake, and the placenta will come out presenting by its amniotic surface. In lateral insertions instead, the hæmatoma will bulge out the edge, which, *when it is not pathologically adherent*, will be detached, and the placenta will descend sliding along the uterine wall, folded according to the longitudinal axis of the uterus.

It is thus evident that we ascribe to the retroplacental hæmatoma more importance in regard to the manner of expulsion of the placenta than as a cause of detachment, and consequently we hold that a loss of blood, more or less profuse, constantly takes place in the third period of labour, and that Duncan's statement of a delivery without the loss of an ounce of blood is the exaggerated statement of an ideal delivery of the placenta.

The normal third stage of labour is always attended with a blood loss. Many authors, in fact, have estimated by clinical researches the average of the blood lost in the delivery of the placenta, but, either on account of the manner in which such investigations have been practised, or on account of the disparity of the results, these researches are not of much value; they serve, however, to show the exaggeration of Matthews Duncan's statement.

Ahlfeld, in 249 deliveries, had found an average of 297 grms., but afterwards, in 400 deliveries, he found an average of 400 grms.; and in the Congress of Halle in 1888 he mentioned an average of 495 grms. Schauta gives an average of 473 grms., Raemer 478 grms., Zinnstag 609 grms, and Mangiagalli 500–600 grms.

Auvard seems to have fallen into the opposite exaggeration in regard to the expulsion of the placenta in the manner described by Duncan. In fact, he calls this last *dystocique*, whilst he calls *entocique* that described by Schultze, but we do not accept his views; but in regard to the time employed by the uterus to deliver itself of the placenta and membranes and the presentation of the

placenta we do not differ much from him. Indeed, if we should make a distinction of the placental expulsion into *entociques* and *dystociques*, we would be inclined, contrary to Auvard's opinion, to denominate as *dystociques* the presentations of the fœtal face in which, as Duncan demonstrated, the placenta does not fold itself in such a way as to present its great axis in correspondence with the axis of the genital canal.

Finally, I think it opportune to mention here how Zinnstag in his work speaks of another manner of expulsion of the placental cake, which he designs with the title of *mixed mechanism* ("Gemischter Mechanismus"). This consists in presenting first a zone of tissue near the edge (not really the edge), and then the uterine face folded on itself with the amniotic bag full of blood. Many other mechanisms (if mechanisms they may be called) might be described, which are, as Ahlfeld has noted, merely transitory forms, "Natürlicher Weise sind Ueber-gangsformen von einem Modus zum audern häufig zu beobachten."

III.

Küstner, Dohrn, Barbour, and Champneys have also discussed the mechanism of the detachment of the membranes, and many theories have been advanced to explain it.

Küstner holds that the separation is effected by the traction of the placenta gradually as it descends. Dohrn, Schultze, and to some extent Ribemont, believed that the retroplacental hæmatoma gradually detaches the decidua in its thinner layer.

Barbour is of opinion that the membranes separate by the contractions of the uterine wall after the expulsion of the fœtus. They (the membranes) form foldings on the surface of the contracted uterus, which, coming into contact and pressing against one another, render the detachment easier. The expulsion, however, is accomplished by the weight of the placenta, which drags them down. The same author, who studied uteri amputated by Porro's operation, and more especially the relation of the membranes to the uterine wall, found that, "on account of the diminution of the internal surface of the uterus the membranes are folded. The amnion is in great part separated from the chorion, and forms a series of foldings, which also are subdivided in many others; there is no blood effusion under the amnion." Pestalozza's sections confirm Barbour's opinion; he says that "the membranes adhere to the internal surface of the body of the uterus, but not everywhere with the same firmness, the amnion especially in large portions lifted up from the choroin, particularly where the insertion of the placenta begins." Having, moreover, observed the membranes still adherent above the inferior segment, but with much stretching of the spongy layer, Pestalozza believed that this fact seemed to confirm the theory of the separation of the membranes as due to the uterine contractions.

It seems to me that in the study of the process of the detachment of the membranes it is useful to keep in consideration various factors. Whilst the above-mentioned theories, taken one by one, are incomplete, considered together they could give us an adequate explanation of the physiological mechanism. The uterine contractions, the blood effusion infiltrating the less resisting layer of the decidua (a factor not accepted by Champneys), and, finally, the weight of the placenta, are all co-efficients, which are of importance in the separation of the membranes.

A point, however, most important and worthy of our attention, regarding the subject which we are discussing, is that which relates to the layer of the decidua through which the detachment takes place. This has been a question much debated, and regarding which there is yet much difference of opinion.

Almost all agree that at the site of the placenta the separation takes place in the *ampullar* layer,—*i.e.*, at the level of the lower ends of the glands, and Ahlfeld has pointed out the reason of it. "The compact layer of the decidua, with its wide sanguine spaces and a portion of the glandular layer, remain attached to the chorion and to the villi of the fœtal placenta, and with the latter are expelled; a thinner part of the *ampullar* layer, the lower layer of the decidua, remain adherent to the uterine wall, being eliminated in the first days of the puerperium. If the compact layer remain, then there is a deviation from the normal process. When the detachment occurs in the *ampullar* layer the tortuous and spiral arteries, which lead the blood from the uterine wall in the compact layer, and from this to the placental sinus, are lacerated, and on account of the contraction of the uterus there is no danger of further hæmorrhage. If, however, the compact layer remains adherent to the uterine wall, then the blood always flows in the opened sinuses, and this blood will flow freely into the uterine cavity, and then to the interior."

For the rest of the uterus it is not generally agreed in what layer the detachment occurs.

According to Robin, the separation takes place between the muscular wall and mucous membrane, the uterine surface being completely bared. According to De Sinety, Langhans, and Küstner, it is effected as in the utero-placental decidua,—*i.e.*, at the level of the lower ends of the glands. Friedländer holds that it is accomplished in the layer of spindle-shaped cells, which undergo a fatty degeneration, which was pointed out by Naegele, Hurvè, and especially by Simpson, as the cause determining the delivery. I have had opportunities of making microscopical examination of pieces of membranes or of puerperal uteri, and our inquiries have led us to conclusions that mostly agree with those at which Carlo Ruge arrived, and that form a part of Schroeder's teaching.

I shall not describe here the structure of the decidua vera; I

have treated it in another work in discussing the question of the origin of the decidual cells, and published under the title, *Microscopical Researches and Clinical Considerations on the Changes of the Uterine Mucous Membrane in Cases of Uterine Tumours, and a Contribution to the Study of the Origin of the Decidual Cells.*

It is now undoubted that its structure gradually changes from the eccentric and always increasing pressure to which it is subjected on account of the progressive development of the ovum, and also because of the adhesion which takes place between it and the reflexa. It is as easy in the last stages of pregnancy to distinguish those layers as in the beginning of pregnancy; therefore, justly, Ruge affirms that the aforesaid discrepancy should not exist. In some of the cases examined by us the separation was effected through the superficial layer,—*i.e.*, of the spindle-shaped cells, as Friedländer stated, without, however, the occurrence of any fatty degeneration. But in the other cases, and they were the most numerous, in which the more superficial layers of decidua had disappeared, or were greatly thinned, the separation occurred in the *lacunar* layer, formed in part of ectasic glands and in part of real lymphatic spaces. In other cases, on account of inflammatory processes, anomalous adhesions existed between the chorion and the decidua, different conditions existed; but I do not intend to speak of pathological processes here.

Finally, recapitulating what we could ascertain through our researches, we say that when the decidua at the end of gestation has not become notably slender, the detachment is accomplished in the layer of the superficial cells, not through fatty degeneration, but only because it is the *locus minoris resistentiæ;* in the other cases it occurs in the layer so named deep or *lacunare*, which, however, on account of the disappearance or lessening of the superior layers had become superficial.

In these last cases the regeneration of uterine mucous membrane dependent on the growth of epithelium lining, the lower ends of the glands must occur not only sooner, but the puerperal period is more near the normal than in those other cases in which it will proceed a little more slowly.

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VIII. NOTE ON THE PRESENCE OF DIFFERENT ALBUMOSES IN THE AMNIOTIC FLUID.

By A. LOCKHART GILLESPIE, M.D., F.R.C.P.E.

IN the course of an investigation into the presence of the different albumoses in effusions and transudations I had occasion to analyze three specimens of amniotic fluid, viz.—(1), The amniotic fluid from the sac of a cow at the first month; (2), human amniotic fluid at the third month; and (3) at the sixth month from a case of sudden death. All these specimens were analyzed immediately after withdrawal from the amniotic sac; in the third instance this was done at the post-mortem examination twenty-four hours after death. Traces of albumose were present in the second, and a comparatively large amount in the third example. There was none in the first. The albumoses were separated out in the usual manner with ammonium sulphate and chloride of sodium, and to make the investigation complete the other constituents were also estimated. The table on next page gives the results. (I make no distinction between hemi- and anti- compounds.)

As pregnancy proceeded, therefore, the solids in the amniotic fluid, as has been shown before, increased. The increase in the inorganic solids was very slight. The organic solids at the end of the first month were wholly extractives. At the end of the third month, ·38 per cent. of serum albumin and ·0734 per cent. of urea were present, with a trace of albumose and peptone. The third, obtained after six months, on the other hand, contained ·7 per cent. of coagulable proteid, only ·08 per cent. of this being serum globulin, and ·1685 per cent. of the different albumoses, of which deutero-albumose was the most abundant. ·09 per cent. of peptone was present, and ·1053 per cent. of urea, as against ·0734 per cent. in the last instance.

The presence of the lower forms of the proteid bodies in the amniotic fluid is difficult to explain satisfactorily. I am inclined to ascribe it to the presence of digestive ferments in the fluid similar to those described as being present in pleuritic or ascitic effusions, and to the consequent digestion of some of the albumin

present. Whether the ferments are derived from the blood of the mother or in some way from the fœtus is immaterial.

Character of Fluid.	Specific Gravity.	Water per cent.	Solids per cent.			Proteids per cent.								Total Proteids per cent.	Various.			Remarks.
						Coagulable.				Albumoses.								
			Total.	Ash.	Organic.	Total.	Albumin.	Globulin.	Mucin	Total.	Proto.	Hetero.	Deutero.	Peptone.		Total.	Fat.	Urea.	
Cow. 1st month of gestation.	1014	98·74	1·26	·72	·54	...	...	...	...	...	...	...	...	0	0	·54	0	Trace.	Chlorine, ·461 per ct. Trace of urobilin.
Human. 3rd month.	1013	97·82	2·18	·76	1·42	·3819	·3819	...	...	Trace.	...	...	...	Trace.	·3819	1·02	0	·0734	...
Human. 6th month.	1013	97·59	2·41	·74	1·67	·7	·6	·08	·02	·1685	·0485	·045	·075	·09	·9485	·6215	0	·1058	Urobilin present.

The methods used in separating out the proteid bodies are now well known and described in most text-books. The albumoses are

extracted from the fluids, after removal of the albumin and globulin by saturation with ammonium sulphate. The amounts are probably a little under the reality, as during the dialysis necessary to separate them from salts a small quantity is lost. The total quantity of proteid is simply the sum of the different forms.

At Dr Ballantyne's request I make this short note, hoping that the point, though minute, may prove of interest. The analyses were carried on at the Laboratory of the Royal College of Physicians, Edinburgh.

MEETING VI.—MAY 9, 1894.

Dr A. H. FREELAND BARBOUR, *President, in the Chair.*

Prof. G. E. Curatulo (Rome) was elected a Corresponding Fellow.

I. *Prof. Simpson* showed—(1.) A VOTIVE OFFERING from Rome representing the UTERUS, and said—Perhaps the most interesting hall in the recent Hygienic Exhibition in Rome in connexion with the International Medical Congress was occupied with objects illustrative of the history of medicine, such as implements from Herculaneum and Pompeii, early works and ancient manuscript volumes on botany, medicine, and surgery, with letters bearing the signature of Bartholin and other famous names. In one press there was exhibited a collection of the votive offerings that people cured of various ailments used to present in token of their gratitude, sometimes to medical men, more frequently to the priests of the temple of the gods or goddesses to whom they thought they owed their cure. In the case of holy wells the offerings were often thrown into the well. Prof. Lanciani, in his latest work on Roman Archæology, tells how the workmen who had to clear out a sulphur spring, called Sorgenti di V. Carello, in 1852, came upon layers of offerings, from coins of the fourth century, through those of the Empire and the family or consular coins of the Roman Republic, on to the unminted bronze sixtants, quadrants, and trients, or shapeless fragments of copper that served as money in the earliest times, and even beyond that to the arrow-heads and celts that had been thrown in by the people of the stone age on the shores of the Lago di Bracciano. The ex-votos found in connexion with the temple-ruins were frequently made of terra-cotta in the shape of some part of the body—eye, ear, breast, arm, foot, etc. Dr Sambon, who had the care of the special collection in the Hygienic Exhibition, is engaged in researches into these offerings, and we may expect to have an interesting account of their varying forms and significance. Through my friend Dr Young I obtained from Dr Sambon one of the ex-votos of which

several specimens have been found in connexion with the Temple of Juno at Veii, and with that of Æsculapius on the island of St Bartholomew in the Tiber, and which represent the uterus. It is of terra-cotta, and represents somewhat of the form and size of a uterus a week after confinement, transversely wrinkled, and having attached to it on the left side a body which seems to represent the ovary. It is flat in the posterior surface, in which there is a hole, probably to allow of its being hung on a nail in the temple wall. This specimen represents a single uterus. Some of the objects, however, distinctly represent a double uterus with double orifice. One wonders if the single uterus might be the thank-offering of a woman who had had an ordinary confinement, and the double one the tribute of one who had happily recovered after a twin-birth.

(2.) A preparation of a THREE MONTHS' OVUM, which had been sent to him two days ago by Dr Inglis of Stratford. The patient had suffered from hæmatemesis eighteen months ago, and had been amenorrhœic nine months before the ovum was expelled. Death of the fœtus had taken place apparently from hæmorrhage into the placenta between the third and fourth month. But the abortion was missed, because the decidual membrane retained its vitality and remained vascular and vital till at the usual term of gestation labour efforts were set up for expulsion of the uterine contents. The umbilical cord entered the placenta at one border, so that it represented a miniature battledore placenta.

II. *Dr Aitken Clark* showed a specimen of INTUSSUSCEPTION OF THE ILEUM at the ileo-cæcal valve. The patient was a well-nourished child 9 months old. The symptoms, which were sudden in development, for the first two days of the illness were sickness and vomiting, without any physical signs being made out. On the morning of the third day of illness a little dark-coloured blood was passed by the bowels, the sickness and vomiting became more pronounced, and for the first time the vomits had a fæcal odour, and on palpating the abdomen tenderness and a little resistance were made out in right lumbar region. An operation was suggested, but was not allowed. Inversion and frequent enemata were tried, but were of no avail, and the child died on the evening of the third day of illness. On post-mortem the omentum was found lying obliquely across the abdomen from left to right; the stomach contained several ounces of a pale yellow fluid with a distinct fœcal odour; the small intestines were moderately distended, the large completely collapsed, and an intussusception found as above stated.

III. *Dr Berry Hart* showed—(1.) SUPPURATING KIDNEY from an abdominal nephrectomy; (2.) An OVARIAN TUMOUR illustrating Küster's sign; (3.) TWO FLESHY MOLES.

IV. *Dr J. W. Ballantyne* showed—(1.) A specimen of MONO-

CHORIONIC or UNIOVULAR TWINS, WITH PLACENTA, which Dr D. Milligan had kindly given him for examination. The mother, a i.-para, 28 years of age, expected to be confined on September 9th, but was taken with labour pains on the 17th of April. During the first two months of her pregnancy, and again in the week preceding labour, she had suffered greatly from thirst, and during the latter period her abdomen had increased enormously in size. The first twin to be born was accompanied by an enormous gush of waters (hydramnios); it showed the typical paracephalic condition, cysts being present at the sides and back of the neck; the second twin was normal. The placenta was adherent and had to be removed in pieces. The pregnancy may have reached five and a half months. The mother made a good recovery. There was no family history of plural gestations. The paracephalic twin in this instance possessed a heart; but there were certain anomalies of the thoracic and abdominal viscera. Both fœtuses were females. (2.) A FŒTUS WITH A GOITRE-LIKE SWELLING OF THE NECK, which he had received from Dr E. Coleman Moore. The mother was an unmarried primipara, and the fœtus was expelled at about the fifth month of pregnancy. It was of the male sex. An account of the results of the dissection would be given on a future occasion. (3.) A DEAD-BORN INFANT, which had occurred in the practice of Dr T. B. Darling. About eighteen months ago he had examined another dead-born infant from the same patient, and had advised the administration of chlorate of potash and perchloride of iron during the next pregnancy. The result was that the pregnancy went in this instance to the eighth month, *i.e.*, a month later than in any previous gestation. The examination of the infant showed typical hydrops sanguinolentus. There was a large thrombus in the umbilical vein near the insertion of the cord into the placenta. The bones were normal.

V. *Dr Fraser Wright* showed specimen of PERFORATION OF VERMIFORM APPENDIX. The specimen was obtained post-mortem from a boy æt. 12½ years. On Good Friday the patient was out driving and apparently quite well; remained well on Saturday and Sunday. Felt sick on Monday; had slight abdominal pain on Tuesday morning, which increased during the day, and Dr Fraser Wright saw him that evening. The abdomen was tympanitic and painful to touch, especially in right iliac fossa; temperature 101°·8 F.; pulse 120, small and wiry; *facies* typical peritonitic. *Diagnosis.*—Peritonitis, probably secondary to appendicitis. *Treatment.*—Expectant. Under treatment by hot fomentations and milk and hot water diet the pain eased, and temperature fell next evening to 99° F., with pulse 80. The boy looked and felt very much better. About 2 o'clock next morning he suddenly vomited a large quantity of bile-stained fluid, became very faint, mind wandered, and he died at 9 A.M. *Autopsy.*—Abdomen contained good deal of healthy pus. Intestines matted, especially in region

of cæcum. Vermiform appendix swelled to about three times normal size, with a small perforation midway between the base and apex, through which pus was oozing. On slitting up the appendix a round hard mass about the size of a small marble was found. It consisted apparently of inspissated fæcal matter, and was firmly impacted at the base of the appendix. The opening between appendix and cæcum very much narrowed. Ileo-cæcal aperture also contracted to about one-half its normal size, and its margins much thickened, and indicated apparently the result of inflammation. The boy had never made the slightest complaint before this attack.

VI. *Dr Brewis* showed—(1.) A small GANGRENOUS OVARIAN CYST with twisted pedicle; (2.) A BROAD LIGAMENT, showing Gartner's duct prolonged from the outer border as a thin pedicle, about 3 inches in length, and terminating in a small cyst.

VII. ON EXTRA-UTERINE GESTATION SIMULATING RETROVERSION OF THE GRAVID UTERUS.

By A. H. FREELAND BARBOUR, M.D.

SOME years ago I brought before the Obstetrical Society a case of extra-uterine gestation which simulated a retroversion of the pregnant uterus. The frozen section which I laid before the Society showed how certainty in diagnosis from physical signs was during life impossible.

A case of a similar nature came under my observation last summer in Ward 28. I have to thank Dr Halliday Croom and Dr Ferguson for particulars of the history of the case before it came under my notice; and my assistant, Dr Walker, for valuable work upon the frozen sections.

In this paper I confine myself to the clinical aspects of the case —looking at the frozen sections only in relation to diagnosis. Dr Walker is still working at the pathological anatomy of the case, and will communicate his results in another paper.

Dr Ferguson of Perth told me he first saw the patient on the 14th March of last year, when she was complaining of some pelvic pain and difficulty in passing water,—not amounting to retention nor requiring the catheter. She said that she had menstruated in the last week of December; and on the 21st of January had pelvic pain on walking, "as if she had racked herself." She had to stop and lay her hand on her side, but did not give up her daily work. On March 17th he examined her, and found a swelling in the posterior fornix, continuous with the cervix, which he supposed to be a retroflexed gravid fundus. He pushed it up, and put in a pessary. He was sent for shortly after this, and found her with symptoms of collapse, and removed the pessary. He attended her up to March 31st, when she was practically well again. On May

2nd and 7th he was sent for to draw off the urine, and learned that on May 1st there had been a slight hæmorrhage from the uterus, the first since the end of December. On May 10th she was sent to Edinburgh, and was in Ward 28 for some weeks.

I did not see her at this time; and Dr Halliday Croom says the condition found exactly corresponded to retroversion of the gravid uterus. The cervix was high up above the pubes; and behind, the pelvis was filled with a cystic mass, in which the fœtal head was felt. As the swelling could not be pushed up, and there were no symptoms calling for interference with pregnancy, the patient went home.

Dr Ferguson was sent for on August 16th, some time after her return from Edinburgh, and found her complaining of severe pain in the abdomen, with great tenderness and a temperature of 104°. Next morning the temperature had fallen to 100°, the pain was relieved, no fœtal heart was heard, and an attack of diarrhœa had set in. Her condition had improved by the 21st of August, so that she was able to stand the journey to Edinburgh Infirmary.

When I saw her on admission I found a tumour extending to the umbilicus, with an irregular outline,—the central part being more prominent and of varying consistence. The form and consistence of the walls of the sac recalled the case which I had laid before the Society previously, although the tumour extended higher up in the abdomen. The condition per vaginam (vagina flattened against pubes, cervix above reach) was exactly like that found in retroversion of the gravid uterus, and in the former case of extra-uterine gestation; but the palpation of the tumour through the abdomen showed that the tumour was not the gravid uterus. And in this case one could recognise (what was not present in the former case) an irregularity in the surface of the tumour, anterior and in the middle line, which at intervals became more prominent and firmer in consistence. From these characters it was diagnosed as the empty uterus incorporated with the front wall of the gestation sac.

She was in a very bad state for operation,—almost moribund, but it seemed her only chance. After consultation with Prof. Simpson (who kindly assisted me in the operation), abdominal section was done.

Operation.—The *peritoneal cavity* was opened into in the middle line, and contained a considerable quantity of very fœtid fluid,—suggestive rather of the post-mortem than the operating-room. The uterus was seen pushed to the right of the middle line by a swelling behind it. A layer of tissue, apparently continuous with the fundus, extended from it upwards, where it was lost, becoming adherent to the bowels. It ended at the left of the uterus in a free border, past which was seen a bluish swelling, recalling a thin-walled ovarian tumour whose pedicle has been twisted. This

was incised, and the fingers passed into a mass of blood-clot, in the heart of which was a fœtus of between the sixth and seventh month. It had apparently been dead some time, as the cord had separated. It was in a state of advanced decomposition.

The sac was cleared out (the placenta, which was on the posterior wall of the uterus, coming away in pieces), then washed out, and stitched to the abdominal wall. A very fœtid discharge now came away from the uterus per vaginam, so that it was thought desirable to wash out the uterine cavity thoroughly.

From the condition of the operation, it was evident that there was little hope of her recovery; and she died.

Remarks.—To ascertain exactly the topographical relations of the gestation sac, it was removed with the pelvis, and the whole frozen.

Dr Walker's drawings enable us to follow the relations of the sac to the uterus and the pelvic contents generally. The sections made were—Vertical mesial, left lateral sagittal, and two right lateral sagittal. The right lateral sagittal, running about ¾ inch from the middle line, shows best the relations of the sac to the uterus; and our drawing is a reduced reproduction of it. (See Plate.)

I. *Right Lateral Sagittal Section.*

The *uterus* (*U*) being displaced to the right of the middle line, is here divided in its whole extent. Its cavity is 4 inches long, the walls being from ¾ to 1 inch in thickness. It contains remains of decidua (*D*).

The *bladder* (*B*)—lying chiefly to the left of the middle line—is cut through at its right corner, the ureter being divided in its wall.

The *rectum* (*R, R*) is seen throughout almost its whole extent; it lies, therefore, entirely to the right of the mesial plane.

The collapsed *gestation sac* (*G. S.*) appears in section as tri-radiate—one limb extending downwards in the position of the pouch of Douglas, coming into relation with the posterior vaginal wall for ½ inch, the second limb passing upwards among the intestines, the third forwards towards the fundus. The *sac wall* is intimately incorporated with the posterior wall of the uterus.

The *peritoneum* (*p p'*), on the anterior surface of the uterus, passes on to the wall of the gestation sac, which is not nearly so thick at this point.

The *intestines* (*I*) are closely incorporated with the sac wall as you follow it upwards.

The *vagina* (*V*) is cut obliquely in its upper two-thirds.

II. *The Vertical Mesial Section.*

The mesial section of the pelvis passes to the right of the uterine cavity (owing to the lateral displacement of the uterus), which is

FROZEN SECTION OF PELVIS WITH EXTRA-UTERINE GESTATION.

U, Uterus ; *D*, Decidua ; *G. S*, Gestation Sac ; *R*, Rectum ; *I*, Intestines ; *B*, Bladder ; *P*, Pubes.

therefore not divided; but the vagina is divided throughout its extent. More of the bladder is seen in this section, and more of the lower end of the rectum; but the upper portion of the rectum (lying, as already said, to the right of the middle line) is only grazed here.

The relations of the sac to the posterior fornix and the fundus uteri are the same here as in the former section.

The lateral sections are the most interesting, as enabling us to trace the connexion of the sac with the Fallopian tubes. In the drawing of the *left lateral section*, made by Dr Walker after the preparation had thawed, you can trace the left Fallopian tube from the left angle of the uterus throughout its course to the fimbriated end. It simply runs in the sac wall. Below it is the left ovary, somewhat expanded, and also incorporated with the sac wall. The sac has not therefore been developed from the left tube.

The left ureter can also be seen pushed aside by the sac, and dilated.

In the *right lateral section* we find the right Fallopian tube much convoluted, and cut across at various points. The opposite face of this section shows that the tube communicates directly with the gestation sac by a patulous opening, suggesting that at least the portion of the wall in this vicinity is formed of expanded tube. The sac wall is much thicker here, and shows in its anterior part a cyst cavity separated from the proper cavity of the sac by a considerable thickness of wall.

The intestines are entirely displaced upwards as far as the summit of the sac; and here the vermiform appendix is seen,—greatly altered in appearance and position, its walls much thickened, and its cavity occupied by caseous-like material. Behind the sac is seen the greatly dilated right ureter passing round its lower angle to reappear below it on its way to the bladder.

The gestation sac is evidently developed in connexion with the right Fallopian tube. The noteworthy features are—its relations to the uterus and to the peritoneal cavity.

As far as the clinical facts go, it seems to have been from an early period posterior to the uterus; and it is noteworthy also that during the first two and a half months there were no symptoms pointing to rupture. To account for these facts, you might suppose that the sac had fallen down and was lying in the pouch of Douglas when Dr Ferguson saw the case in March. That a sac can come to occupy this situation and grow there, is, I think, proved by the case that I laid formerly before the Society. It would be extremely difficult to diagnose a sac in that position from the retroverted gravid uterus. The attempt to replace it must then have been followed by rupture; and it is not quite clear whether

rupture took place into the peritoneal cavity or the broad ligament. We must remember what a very delicate membrane the peritoneum is—a mere layer of epithelial cells with a film of connective tissue; and how the pressure of a tumour causing adhesions completely obliterates it. I do not attach, therefore, much importance to the fact that the peritoneum cannot be traced round the tumour; and considering the delicacy of the peritoneum, I think we may attach too much importance clinically to the difference between intra- and extra-peritoneal ruptures.

The appearance of the sac wall at the fundus is, however, distinctly in favour of the view that the peritoneum has been dissected off the posterior wall of the uterus by the advancing sac,—that is to say, that its growth after rupture was extra-peritoneal. Against this is the fact that the sac was mesial and posterior. One would expect a sac, burst into the broad ligament, to displace the uterus laterally, dissecting its way specially to one side of the pouch of Douglas; in this case it has extended both to right and left of the middle line, simulating throughout in its growth exactly the relations of the retroflexed gravid fundus. The simulation was further maintained by the almost complete amenorrhœa. There was a slight hæmorrhage in the first week of May, and also on two occasions while she was in hospital.

Retention of Urine was present about the same period that we find it in retroversion of the gravid uterus; as also the upward and forward displacement of the vagina and cervix. The reason for these will be evident when you look at the relation of the tumour to the uterus and bladder as seen in the frozen sections.

What, then, are we to rely on for *Differential Diagnosis* in such a case?

Hæmorrhage from the uterus during pregnancy should always put us on our guard. We associate it with a threatening of labour; and in ninety-nine cases out of a hundred it means that. But if a hæmorrhage has occurred at an early period of gestation, without being followed by abortion, and if it has occurred on different occasions, we should always keep before us the possibility that the ovum is not growing in the uterus, but is extra-uterine. In this case the slight hæmorrhage on three occasions should have suggested the possibility of an extra-uterine gestation.

The only physical sign we can rely on in such cases as these is the difference between the feeling, on palpation, of a gestation sac and a pregnant uterus. The fingers per vaginam may not be able to recognise any difference between a gestation sac and the uterus; but the abdominal hand will detect some peculiarity in the shape, or the outline or consistence, which will raise the suspicion that the tumour is not a normal pregnant uterus. In both these cases the contour of the abdominal swelling was unlike that of the rounded fundus; it was harder, and tending to bulge

to one side instead of rising towards the middle. And in the second case, though the uterus was not separate from the sac so that you could recognise it distinctly, there was a swelling in the anterior surface of the sac which varied in its consistence from time to time—a characteristic which showed that this part of the tumour was uterine, although the whole tumour was not the uterus.

Retroflexion of the gravid uterus is generally regarded as a well-marked condition, as having such obvious symptoms and physical signs that it should be recognised without difficulty.

Such cases as the foregoing, exceptionally rare though they are, and in which you have a comparatively rare condition simulating a more frequent and obvious one, are, I think, of peculiar value.

Dr Ferguson (of Perth) said he was glad to have been present and heard Dr Barbour's interesting paper. As regards the early clinical history of the case while under his observation, he could only endorse in every detail what had been related, and thanked the Society for giving him this opportunity of doing so.

Prof. Simpson thought the Society was much indebted to the President for the record of this interesting case, more especially in connexion with the case which he had previously communicated to the Society. He (Prof. Simpson) had repeatedly examined that case, and had ever since been cautious in speaking of the facility of diagnosis of the impacted retroflexed uterus. The points of distinction brought out in the President's paper were of great importance, for when we could recognise the extra-uterine pregnancy early, we could interfere in the way of operative treatment with the most hopeful results. By the time Dr Barbour had had the opportunity of eventually operating on the patient her condition was already hopeless.

Dr Brewis thought the narrated case illustrated the value of anæsthesia in cases of doubtful diagnosis. He considered that in this instance a correct diagnosis might have been arrived at in an early stage of the disease. The absence of decidual membrane in Dr Barbour's case added greatly to the difficulty, as its presence was a valuable sign of extra-uterine gestation.

Dr Oliphant said he had seen an extra-uterine gestation behind the uterus so closely adherent as to simulate a fibroid; and, also, it was possible to mistake a fibroid on a pregnant uterus for a uterus and extra-uterine gestation, as in the case of a woman he expected to deliver who had recently had her abdomen opened.

Dr Barbour, in reply, said that he had advisedly described it as a case of extra-uterine gestation simulating retroversion of the gravid uterus, because the case had been seen at an early period, before symptoms of rupture occurred, by Dr Ferguson, who found the swelling at that date distinctly posterior to the cervix. He had limited his observations to the points in physical diagnosis raised by the case.

VIII. THREE CASES ILLUSTRATIVE OF HERMAN FREUND'S LAW OF PEDICLE TORSION IN OVARIAN TUMOURS.

By A. R. SIMPSON, M.D., Professor of Midwifery and the Diseases of Women and Children in the University of Edinburgh.

WHEN the preparation was still fresh, I showed the Society a specimen of an ovarian dermoid with torsion of the pedicle, remarking that it illustrated Dr Herman W. Freund's explanation of the pedicle torsion of ovarian tumours.[1] Two other cases of ovariotomy this spring have occurred where the pedicles were twisted, and as the histories of the cases which furnished the preparations present several points of interest, I give them from the ward journal as drawn up by Dr Fothergill:—

CASE I.—Lily M'L., æt. 20. Patient was admitted on December 7th, complaining of pain in the abdomen, especially on the left side, and of amenorrhœa for two months. On December 1st she fancied she strained herself in reaching up to clean a window. On December 3rd she felt a severe pain in the right iliac region. Next day the pain was absent; but patient felt out of sorts, and took an aperient. On the following day the pain returned, but patient worked hard and was exposed to the weather. Two days later she was admitted, having been at work till the night before.

Previous health excellent, with the exception of measles and scarlatina.

Family health interesting, as her mother states that she herself had a tumour (dermoid cyst) removed from the face some years ago. Two of her sisters (aunts of patient) have cancer—one of mamma, the other of uterus—and an aunt (great aunt of patient) died of cancer of the uterus.

Menstruation regular; twenty-one days' type; duration four days. There was some irregularity at its establishment; and patient had an excessive discharge once, a year ago. She has missed the last two periods; she has sometimes had post-menstrual leucorrhœa. No pregnancy or abortion. During the present attack the patient has had pain on micturition. She has always been constipated.

On physical examination, the mammæ were small and distinctly nulliparous. The abdomen was slightly rotund, with a tense elastic wall. Some tenderness was noted in the right iliac fossa and hypogastrium. The percussion-note was tympanic in all regions. *P.V.*, the cavity was roomy, with moist rugose walls. There was some tenderness. The cervix was normal. A firm rounded swelling could be felt to the right of the uterus. Under chloroform this was found to be about the size of a child's head.

[1] "Der gewöhnliche und ungewöhnliche Wanderungsmechanismus wachsender Eierstocksgeschwülste," *Volkmann's Sammlung*, 361-62; and also "Die Stieldrehung der Eierstocksgeschwülste," *Centralblatt für Gynækologie*, 4th June 1892.

The uterus lay somewhat backward and to the left, and was normal in size and consistency.

On December 23rd Prof. Simpson opened the abdomen, and found that extensive adhesions had formed; but on separating these he found a cyst, with its pedicle twisted to the left, growing from the right ovary. Torsion had caused effusion of blood into the mass, and about ʒiij. of dark fluid was aspirated. The tumour removed was thick-walled, multilocular, and obviously dermoid in character,—one cavity containing hair, others whitish sebaceous matter, and others being lined with a structure closely resembling a mucous membrane.

Recovery was unmarked by any abnormal symptom, and the patient was dismissed well four weeks later.

CASE II.—Mrs M., æt. 29. The patient was confined of her sixth child on December 10th, 1893, and noticed that her abdomen remained much distended during the puerperium. At the beginning of March she was admitted to the Royal Infirmary, complaining of the mechanical inconvenience caused by the large size of her abdomen. There had been some pain previously, which disappeared two weeks before admission.

Her previous health had been excellent. The family history was unimportant. Menstruation began at the age of 14 and was irregular, the type varying from twenty-one to twenty-eight days; duration, three to four days. There was no menorrhagia, dysmenorrhœa, or menorrhagia, nor was there any intermenstrual discharge. Her pregnancies were six in number—the first ten years, and the last three months, before admission. Labours and puerperia were all normal, except the last puerperium, which was complicated as above mentioned. During the pregnancy she thought she was "larger" than usual, but had no abnormal symptoms. Lactation in the last case was terminated in hospital by belladonna plasters There was no disturbance of the functions of bladder or rectum, nor were any of the other systems affected.

On physical examination the mammæ were of moderate size, but full of milk, with dark areola and prominent nipple.

The abdomen was very prominent, and resembled in size a full-time pregnancy. The umbilicus protruded, and the striations were numerous. A very tense tumour was felt on palpation rising from the pelvis, and yielding marked fluctuation. The percussion note was dull, except for 1½ inch below the ensiform and over a small portion of each flank. *P.V.*, the cavity was smooth and moist, conical in shape, like a senile vagina. The cervix was small and atrophied, the body of the uterus being but indistinctly palpable. The rounded lower surface was felt to move on pressure with the external hand. The appendages were not palpable.

On March 14th Prof. Simpson opened the abdomen, and finding numerous adhesions between the tumour and the omentum

separated these with sponges, and then aspirated. The fluid was brown and viscous. Some degenerated septa escaped along with it. The tumour was then found to arise from the left ovary, with a well-marked twist to the right. The other ovary was healthy. The uterus was very small and thin, recalling the atrophied condition of the cervix noted *P.V.* The pedicle was secured with a single ligature, the tumour removed, and the incision closed.

The patient recovered without a bad symptom, and was discharged well four weeks later.

CASE III.—Mrs N., æt. 24. Patient admitted February 7th, 1894, with pain in back and abdomen, mostly on left side; also pain in the legs, of four months' duration. She had a miscarriage five months ago. She had then severe pain in the legs and back. Her general health has since improved. Previous health excellent; family history unimportant.

Menstruation began at 15, was of twenty-eight days' type, and five or six days' duration. There was always some dysmenorrhœa; but previous to marriage, eight months ago, no amenorrhœa, menorrhagia, or leucorrhœa. After marriage, she missed two periods and aborted at the third month; she then menstruated four times, and had some intermenstrual leucorrhœa. She has not menstruated at the last two periods. Patient sometimes has pain in the region of bladder after micturition. She suffers from constipation.

On physical examination the mammæ are large and unstriated, with secondary areola and prominent nipple, a large amount of gland tissue, but no secretion.

The abdomen is prominent, specially on the right side. There are no striæ, a faint linea nigra, and flattened umbilicus. A large rounded tumour can be felt reaching from the pelvis to an inch above the navel and 2 inches to the left of the middle line, extending on the right back along the crest, almost to the quadratus lumborum. Fluctuation is very perfect. The percussion-note is dull over the area mentioned. *P.V.*, there is a roomy vagina; the cervix is large, soft, and high up. Through the right and anterior fornices can be felt the body of the uterus, separate from the tumour, which can be pressed by the external hand into the pelvic brim. The body of the uterus is the size of one three months pregnant, and has the same consistency. The vaginal walls show the purple hue of pregnancy.

On February 17th Prof. Simpson opened the abdomen, and found a parovarian cyst growing from the left side, twisted to the right, and lying to the right of the abdomen. The uterus was three months pregnant and pushed to the right. The tumour was removed.

Recovery was perfect, and occurred with no interference to pregnancy. Patient was dismissed a month later, and Dr Clarkson wrote on May 1st saying that she is in good health, and pregnancy advancing normally.

Origin of Dermoids.

The first case presents a point of interest in regard to the nosogenesis of the tumour, which was a dermoid. Two distinct explanations have been offered of the origin of dermoid tumours of the ovary:—

1. Blumenbach, Waldeyer, Lawson Tait, and others, have maintained the opinion that they arise from perverted development of an ovum or primordial germ cell. This theory is very earnestly pressed by W. A. Johnstone of Cincinnati in a paper[1] read last year before the American Gynecological Society, in which he relates the history of a case where he found in the wall of an ovarian dermoid "the inside of a heart almost perfectly formed."

2. The idea of Heschl, on the other hand, that we have here to do, as in dermoid tumours elsewhere, with the inclusion of cutaneous elements that have become ensnared among the deeper tissues during the development of the embryo, is strongly advocated by Olshausen.[2] The circumstances that the mother of our patient had had a dermoid tumour of the cheek, and that some of her other relatives had been the subjects of cancers—the origin of which has been attributed by Waldeyer to the inclusion of epithelial elements in connective tissues—seem to lend probability to this explanation. At the same time, it is to be observed that the tumour is not a pure dermoid; for while one cyst contained skin with hair and sebaceous contents, other cysts contained a more watery fluid, and were lined with the epithelial cells that more resemble those of a mucous membrane. And Bland Sutton[3] has shown that there are all stages of transition from the true dermoids to the ordinary glandular cystomata of the ovary, the origin of which he traces to the follicular elements of the ovary proper.

Superinvolution of the Uterus.

The second case was peculiar in its association with atrophy of the uterus. This had set in after the confinement, three months before the operation. In a communication I made to this Society on Superinvolution of the Uterus,[4] I pointed out that this puerperal atrophy might be associated with the development of tumours, and made reference to a case where the superinvolution set in after an abortion in a patient who had a sarcomatous tumour of the thigh. In the present instance, I cannot trace any condition that would explain the atrophy, except the nutritive disturbance in the whole sexual apparatus, due to the apparently rapid growth of the ovarian tumour subsequently to the labour, or interference with the uterine

[1] *Transactions of the American Gynecological Society*, vol. xviii. p. 301, 1893.
[2] Billroth and Luecke's *Handbuch der Frauenkrankheiten*, ii. p. 665.
[3] *Dermoids, or Tumours containing Skin, Hair, Teeth, etc.*, 1889, p. 109.
[4] *Edinburgh Obstetrical Transactions*, vol. viii. p. 88, 1882-83.

circulation from the torsion of the ovarian pedicle. The super-involution had been recognised in the bi-manual examination of the patient, conjoined with the use of the sound, and was confirmed by direct observation during the operation.

Ovariotomy during Pregnancy.

The peculiarity in the third case was its complication with pregnancy. The possibility of the occurrence of conception in a woman with an ovarian tumour is well known, but the diagnosis is not always easy. In some cases the discovery has only been made after the abdomen has been opened, with the view of removing the ovarian growth. Various opinions have been expressed as to the influence of pregnancy on such tumours,—some believing that the tumour grows more rapidly, others that it is checked in its development. Dsirne, in his paper on "Ovariotomy in Pregnancy,"[1] thinks the evidence is in favour of their more rapid growth in pregnant women. The pregnancy, he goes on to show, may progress, and labour end unhindered,—Hegar and Kaltenbach giving the labours that end normally in presence of ovarian tumours as 60 per cent.; and Dsirne himself finding 29 out of 135 cases where the woman had at least been delivered once before the tumour gave rise to trouble. Sometimes there had been several labours,—as many as eight or eleven. But when the question arises as to the treatment of a gravid woman suffering from an ovarian tumour, we have to keep in view that Heiberg has given the results of 271 cases of this complication, which showed that one-fourth of the mothers and two-thirds of the infants perished. Hence obstetricians more and more are encouraged to have recourse to ovariotomy during pregnancy. When we look at the results of ovariotomy in pregnant women as given by Olshausen,[2] we find that of 82 patients operated on 74 recovered, giving a mortality of 9·8 per cent., which closely approaches to the mortality of 9·5 per cent. which he gives as the result of ovariotomy in general. Dsirne's statistics give a mortality of only 5·9 per cent.; and among his 135 cases there were six where both ovaries were removed. All the six women recovered: two aborted, one had premature labour at the eighth month, the other three had normal deliveries. He shows that the pregnancy is interrupted in 22 per cent., that the operation becomes more dangerous as pregnancy advances, and that the third month is the most favourable period. Polaillon[3] gives a case of double ovariotomy at three and a half months, where the tumours were adherent to the omentum and the bowels, yet the patient recovered, and had a normal delivery at the full term. Our patient came under observation, therefore, and was operated on at the most satisfactory period of pregnancy.

[1] *Archiv für Gynækologie*, xlii. 415, 1892.
[2] *Loc. cit.*, 399.
[3] *Annales de Gynécologie*, xxxvii. 2, 1892.

Pedicle Torsion.

The point of common interest in the three cases is that in each there was marked torsion of the pedicle. Now, as regards the first of the cases, where we had to do with a dermoid tumour, we note that whilst Olshausen gives the proportion of dermoids in all cases of ovariotomy as 4 or 5 per cent., he found that in his twenty-one cases of pedicle-torsion four were dermoids. One of the earliest papers on the twisting of the pedicles of ovarian tumours was submitted to this Society many years ago by Sir William Turner,[1] and out of the seven cases that formed the basis of his communication, in at least four the tumours were dermoid. As regards the second case, it may be taken to support the idea expressed by Sir Spencer Wells and others, that torsion of the pedicle is apt to follow the diminution of the uterus after labour; whilst the third case may be supposed to corroborate the opinion of Barnes, Schröder, etc., that the torsion may be produced by the growth of the gravid uterus.

These and many other causes have been adduced in explanation of the occurrence of the twist. The influence of the alternate filling and emptying of the rectum, first clearly enunciated by Lawson Tait,[2] has been maintained by Alban Doran[3] and others. Klob refers the rotation to the alternate filling and emptying of the bladder; whilst unequal growth of the tumour, changes of position of the patient, the action of the abdominal muscles, and gynecological examinations, have all been called in to explain the occurrence in cases where axial rotation has been found during ovariotomy. The most important contribution, however, to the whole subject has been made by Dr Herman Freund, in the papers to which I have referred. He has shown that in the progress of growth ovarian tumours undergo changes of position at two different stages. In the first, whilst they are pelvic, their tendency is to grow downwards behind the uterus, and to keep their pedicle on their anterior aspect. In the second stage, when they rise out of the pelvis, they tend to fall forwards towards the abdominal wall, and their pedicle is then found on their posterior aspect. My old master, Prof. Goodsir, used to teach us that there was a law of spirality guiding the growth of all organisms. This idea has been worked out by Prof. Emil Fischer of Strassburg,[4] who maintains that axial torsion is a function of the living cell; that the growth of organisms takes place under constant spiral axial torsion, and that bi-lateral symmetrical organisms possess on the right side of the body sinistro-spiral growth-torsions, and on the left dextro-spiral growth-torsions; and he indicates that this holds good with

[1] *Edinburgh Medical Journal*, 1860-61, p. 698.
[2] *Diseases of the Ovaries*, 1883, p. 303.
[3] *Tumours of the Ovary, etc.*, 1884, 118.
[4] *Das Drehungsgesetz bei dem Wachsthum der Organismen*, 1884.

regard to ovaries, ovarian ligaments, tubes, and broad ligaments. Now, H. Freund has made observations which confirm Fischer's thesis; and pushing his investigations into the condition of the pedicle of ovarian tumours, comes to the conclusion that in all cases where an ovarian tumour reaches the second stage, and has no obstacle presented to its usual progress, there will be found a torsion of the pedicle to the left in right-sided, and to the right in left-sided tumours. The usual rotation may be prevented or counteracted by adhesions, by the presence of other tumours, or by undue tension of the abdominal walls. The rotation may represent only half a turn or a full turn, and in some cases may be oftener twisted without giving rise to distinct disturbance, though he finds that the cases of exaggerated torsion occur in the nearly 200 cases that formed the subject of his research in about the proportion of 8 per cent., which is given by Olshausen as the percentage of pedicle-torsions generally in ovariotomy. Whatever may lead in individual cases to the exaggerated torsions, Freund seems fairly to have established the law that right ovarian and parovarian tumours have normally a sinistro-spiral twist of the pedicle, and that tumours of the left side have a dextro-spiral twist. The cases I have related are accordant with Freund's law.

Dr Halliday Croom had listened to Prof. Simpson's paper with much interest, as he had himself had to deal with many cases of twisted pedicle. He had pointed out that in a great many cases where he had known of the ovarian tumour before symptoms of torsion were developed he had found the tumour entirely pelvic, and after the symptoms became marked the tumour had become abdominal. He was under the belief that the first twist occurred by the tumour in whole or in part slipping out of the pelvis after some strain. He thought that this, at any rate, initiated torsion.

Dr Brewis considered Prof. Simpson's paper a most valuable contribution to the subject of torsion of the pedicle, and the Society was greatly obliged to him for bringing forward his cases in illustration of Freund's theory, which theory seemed of great importance as being a definite and feasible one. Twisting of the pedicle doubtless occurred in more cases than was supposed; in Dr Brewis's experience it had always been most marked in ovarian tumours associated with pregnancy. In the case which Dr Brewis showed to the Society to-night, the torsion had been so great as to destroy the vitality of the pedicle and likewise of the tumour.

The President thought the law of spirality in growth was not applicable to ovarian tumours, because the pedicle was not an integral part like the branch of a tree, but a structure formed artificially during growth. The law of spirality might influence the growth of a structure like the Fallopian tube, but he failed to see its applicability to an ovarian pedicle.

Prof. Simpson, in reply, taking up first the point referred to by the President, indicated that Freund's very contention was that torsion of the pedicle to a certain extent was the rule, and was found in every case where there was no counteracting condition, and would be often observed if ovariotomists would take time, before securing the pedicle, to examine its condition. Though the pedicle was usually composed of various elements, these all were, according to Fischel, in a state of axial rotation in their physiological condition, and all in the same direction on their respective sides, so that when the pathological development occurred they retained their normal torsion as they underwent elongation. He (Prof. Simpson) was glad Dr Croom had reminded them of his observation of the tendency of the torsions to occur at the date of the escape of the ovarian tumours from the pelvis, for whatever might be the condition causing the exaggerations of the rotation, it was precisely at that time, on Freund's showing, that the normal torsion was free to manifest itself.

IX. ON THE CAUSATION OF THE SACCULATED PREGNANT UTERUS.

By J. Halliday Croom, M.D., F.R.C.P. Ed., F.R.S.E.

A sacculated pregnant uterus occurring in the later months of gestation is by no means a frequent occurrence, and the difficulties associated with the diagnosis are so great that I have thought it well to describe four cases which I have met with lately.

The condition has been described under various names,—*e.g.*, retroversion of gravid uterus at term, sacciform uterus, and sacculated uterus. Merriman, in his work *A Synopsis of the Various Kinds of Difficult Parturition*, says "that he has had opportunities of being acquainted with two cases of that peculiar and unusual position of the uterus in which the os uteri is projected so high above the symphysis pubis as to be beyond the reach of the finger, and the body of the uterus so completely fills up the back part of the pelvis that the sacrum cannot be touched."

In one case the situation of the patient at the first seemed inexplicable, and she continued several days in labour; but the gradual efforts of Nature at length completed her delivery by restoring the womb to nearly its natural situation. She recovered, but the child was dead-born.

A second case recorded by Merriman was as follows:—"Pains and discharge of liquor amnii. Per vaginam, whole of back part of pelvis filled up by a globular tumour and no os uteri felt. Per rectum, tumour made out to be uterine. Patient continued with pains, and on the following day the tumour descended and patient had convulsions. On 18*th* and 19*th* no change. On 20*th*, on passing finger above pubis, evidence of a show, but os could not be

felt. On 21*st*, tumour ascended above brim of pelvis and putrid head of fœtus descended, and os became evident. Labour ended by craniotomy." Merriman further adds: "These cases, I conceive, establish the fact that a retroversion of the uterus may exist at the full term, and, if I mistake not, go far to prove that many cases of supposed extra-uterine gestation were in reality cases of retroverted gravid uterus." He further cites a case where a fœtus was removed through the posterior vaginal wall, supposed to be a case of extra-uterine pregnancy, which, however, merely turned out to be a case of retroverted uterus. From Merriman's time till now cases of this abnormality have been recorded by Oldham, Reid, Duhrssens, Sperber, and others.

The following four cases have come under my own personal observation:—

CASE I.—A multipara of 35 years of age was sent to me supposed to be suffering from a large ovarian tumour. On examination I found a large semi-solid irregular mass filling up the abdomen, and reaching half-way between the umbilicus and ensiform cartilage. On the left side below the umbilicus the mass seemed softer, but with this exception the whole tumour seemed one mass, and had all the characteristics of a semi-solid ovarian. There were no auscultatory sounds of any kind, and the woman gave a history of suppressed menstruation for over a year. Per vaginam, the pelvis was filled up by an elastic bulging mass with a somewhat irregular surface. No trace of a cervix uteri could be found even after the most careful examination under anæsthesia. Under these circumstances, I think I was more than justified in coming to the conclusion that the patient was suffering from a large semi-solid sessile ovarian tumour. Indeed, the absence of the os,—the presumption being that the uterus was tilted upwards and forwards, as is so often the case in sessile tumours,—the absence of auscultatory sounds, the menstrual history, and the physical examination of the tumour, rendered no other diagnosis possible. I accordingly operated, and on opening the abdomen found, as I expected, a large semi-solid ovarian tumour. On attempting to remove it, however, I found a second tumour on the left side, reaching up to near the umbilicus, unconnected with the ovarian mass. Its real nature I at first did not recognise. The ovarian tumour was pediculated and removed without any great difficulty. The fact of its being pediculated showed that it had no relation to the pelvic mass below. The point, however, of main interest is this, that projecting from the lower edge of the ovarian tumour there was a hard solid projection firmly impacted against the soft mass to which I have just referred, and slightly adherent to it. This projection pressed over the brim of the pelvis, deeply indenting and dividing into an upper and a lower half what turned out to be the pregnant uterus.

After recognising the condition of matters, I removed the ovarian tumour. Two days afterwards the patient showed signs of labour. I examined her per vaginam, and could just manage to reach the os and feel the projecting head. Owing to the abdominal wound and recent operation, I dilated as rapidly as I could, and delivered with forceps a fœtus between six and seven months old. In this case the lower segment of the uterus contained the head, and the upper the trunk and the extremities.

The cause producing this sacculated condition was obviously the growth of the ovarian projection *pari passu* with the development of pregnancy.

Case II. illustrates the production of this abnormality from a different cause. In 1886 I saw a patient suffering from a large pelvic abscess which was pointing through the vaginal roof. She had missed two periods, supposed to be due to exhaustion and anæmia consequent on the abscess. The abscess cavity was drained, and patient quite recovered. I heard nothing of her again for seven months, when I was asked by her medical attendant to see her, as she was in labour, and he could find no os. We found a tumour, evidently the pregnant uterus, reaching as far up as the umbilicus, and a round, firm, solid mass occupying the vagina. Under an anæsthetic I could just feel the posterior lip of the cervix. It was quite hard and fixed. I waited some little time, but the cervix, which was hard and indurated, showed no symptoms of dilating, and her previous abscess in the pelvis and subsequent adhesions did not warrant one in using any great effort to pull the cervix into position. There was, therefore, no alternative but to open the abdomen and extract the fœtus. This offered no difficulty except one, viz., that I had some trouble in pulling the head, which was large and somewhat hydrocephalic, out of the cavity of the pelvis. The child was dead, and the mother recovered from the operation; but later on, about the second week, she developed peritonitis, probably septic in origin, and died of pneumonia.

Dr Reid of Glasgow communicated a somewhat similar case to this Society, which he designated as "labour obstructed from an unusual cause." In his case the placenta occupied the lower uterine segment, and the cause of the displacement he attributed to adhesions consequent upon an old pelvic inflammation.

Case III.—A third case was sent to me by Dr M'Kercher, which serves to illustrate still further the method by which this anomaly is produced.

A multipara of 44, supposed to be suffering from an ovarian tumour, was sent here for operation. I found a tumour, somewhat irregular in shape, occupying the abdomen and reaching as far up as the umbilicus. The vagina was likewise filled by a large rounded tumour. No cervix uteri could be anywhere detected,

and as there was no auscultatory sounds to be heard except a very faint souffle, as the patient had had irregular hæmorrhages, and as the tumour had grown rapidly, I arrived at the conclusion that she was suffering from a sessile ovarian. I accordingly opened her abdomen, and to my surprise found a pregnant uterus. Before closing the wound I was interested to know the cause of what was obviously a sacculated uterus. The only abnormality I could discover was a fibroid tumour in the anterior uterine wall, which by impinging on the brim of the pelvis had prevented the lower uterine segment rising. I very gently freed this, and closed the abdomen. Four days afterwards the woman was delivered with the greatest ease, the cervix coming into its proper axis. After the birth of the child the uterus again became retroverted, and there was some difficulty in removing the placenta.

Duhrssens records a case of gravid retroflexion at the sixth month which was associated with a soft fibroid in the anterior wall. It was partially replaced, and a subsequent laparotomy was performed, as he mistook the fibroid for an ovarian tumour. After removal of the fibroid, the woman aborted and recovered.

Sperber relates a case of partial retroflexion at the seventh month, there being no fœtal parts in the pelvic portion. All the symptoms of incarceration were present at the seventh month, along with well-marked uterine pains, when curiously enough the uterus righted itself, and the pregnancy went on to full term.

CASE IV.—The counterpart of the case I have just narrated, which simulated a sacculated uterus, was under my care in Ward 28 in December 1893. She was sent in by Dr Smith of Grahamstown. On examination we found a large pelvi-abdominal tumour reaching as far up as the umbilicus and filling up the vagina completely. No cervix could be detected. The tumour filled the whole false as well as true pelvis. On the left side it was hard and nodular, but on the right side, however, it was quite soft, and both a uterine souffle and a fœtal heart could be detected in that region, the vaginal part being firm and solid. It was therefore obvious that one had to deal with a pregnancy and a group of uterine fibroids. A large fibroid mass occupied the cavity of the pelvis, completely obliterating the os. On Christmas Eve the patient went into labour, and as labour went on, the tip of the finger could just reach the os above the pubis. Delivery *per vias naturales* was obviously impossible. Cæsarean section was performed. Unfortunately, the patient died some days later, partly from hæmorrhage and partly from septicæmia. The fœtus also was dead.

The last case to which I refer, and which I regarded as a sacciform uterus, passed from my hands to those of Dr Barbour. It proved to be an extra-uterine pregnancy, and the case is recorded by Dr Barbour in detail.

It seems to me that the main difficulty is to differentiate this form of uterus from a sessile ovarian tumour, and where the auscultatory sounds are wanting, as occurred in two of my cases, the difficulties are practically insurmountable, because it must be borne in mind that the abdominal portion of the uterus is much more fixed than usual, and is generally more or less deflected to one or other side.

Prof. Simpson thanked Dr Croom for his interesting communication. Although he could not say he had actually met with a case of the description, he was quite prepared to admit that such did rarely occur. He thought that by having the subject brought forward in this practical manner it might be the means of causing others to relate any similar case they might have met with, and thus give a fillip to the consideration of these rare and interesting conditions.

MEETING VII.—JUNE 13, 1894.

Dr A. H. FREELAND BARBOUR, *President, in the Chair.*

I. Hugh Lewis Hughes, L.R.C.P.&S.Ed., and S. Glanville Morris, M.B., C.M., were duly elected Ordinary Fellows of the Society.

II. *Dr J. W. Ballantyne* showed a copy of Lycosthene's work on Teratology, which he had recently acquired. The work was rarely seen nowadays, there being no copy in the Edinburgh medical libraries, and perfect specimens fetched a good price. The author was an Alsatian, and his work was published at Bâsle in 1557, four years before his death. It is copiously illustrated with quaint drawings of malformed infants and animals, and in many instances the calamity supposed to be foretold by the monstrous birth is also portrayed.

III. ON INSPECTION OF THE FEMALE BLADDER AND URETHRA, WITH SPECIAL REFERENCE TO DR HOWARD KELLY'S METHOD.

By N. T. BREWIS, M.B., F.R.C.P.E., Lecturer on Gynæcology, Edinburgh Medical School.

MR PRESIDENT,—At the commencement of the session you indicated that short papers of a practical nature were desirable at our meetings, and that you would be glad of such contributions from the Fellows. In response to your invitation I have pleasure in bringing before the Society to-night a method which has recently been introduced for inspection of the interior of the female bladder

and urethra,—a method which, from the simple way in which it is carried out, and the satisfactory results it gives, bids fair to be of the greatest service in the diagnosis and treatment of vesical and urethral affections.

Previous to the introduction of this method by Dr Kelly, inspection of these organs was more or less of a failure; few gynæcologists practised it,—they contented themselves with palpation, which was easily performed and was a success. Now, inspection can be as easily and successfully practised as palpation, with as valuable results.

Before describing this new method, let me give a brief retrospect of some of the most approved bladder specula, and the reason of their want of success.

1. Simon's specula are well known. They consist of a series of seven hard rubber specula, varying from $\frac{2}{4}$ of a centimetre to 2 centimetres in diameter. Each is provided with an obturator, to be used while the instrument is introduced, and afterwards withdrawn. They are excellent dilators of the urethra, and thus are useful in palpation and in some operative procedures; but for purposes of inspection they are of little use, because, being hollow, the urine escapes, the bladder walls fall together, and only a small portion of the interior can be seen.

2. Skene's endoscope. This instrument is composed of three parts, viz., a glass tube, shaped like a test-tube; a mirror, which is placed in the tube; and a hard rubber speculum, fenestrated or open. Light is thrown into the tube, and the portion of the urethra or bladder opposite the mirror is seen. As I have no personal experience of this instrument, my opinion regarding it cannot carry much weight. To me it would seem inefficient, from the fact that the appearance of the vesical walls as portrayed in the mirror must be somewhat altered from being reflected through the glass tube and through the urine which the bladder contains. I imagine, also, that the whole of the interior, and more particularly the base of the bladder, could not be inspected. Skene, in his work on *Diseases of the Bladder and Urethra*, published in 1878, highly extols the apparatus, and says he can accomplish with it all that is to be desired. He now seems to have changed his mind, as in his recent work on *Diseases of Women* he remarks that "the cystoscope of Nitze and Leiter is the only instrument for thoroughly investigating the bladder," and on the same page only claims for the endoscope that with it a dexterous manipulator can thoroughly examine the urethra and neck of the bladder.

3. To obtain a picture of the interior, Rutenberg distended the viscus with air. He accomplished this by means of a tube incorporated with the speculum, and through which air is driven for purposes of inflation. The speculum, which contains a mirror, is made of silver, and has a glass fenestrum at the further end. Light is reflected into the speculum by a concave mirror, and by

moving the instrument in various directions the posterior and lower bladder walls can be plainly seen. Rutenberg, however, was never able to distinguish the ureteral openings. The objections to this method are, that forced distention of the bladder is painful, that under pressure the air may enter the ureters, reach the pelvis or the kidney, and cause pyelitis or pyelo-nephritis. The instrument is a complicated one.

4. Electric illumination with the cystoscope, after the method of Nitze and Leiter, is well known to give excellent results. To my mind this plan is faulty, in that the glare from the lamp gives the walls an unnatural appearance. The healthy mucous membrane of the bladder appears under the electric light to be a reddish-yellow colour. Under direct inspection through Kelly's speculum it is pale. During electric illumination the urine must be clear; if pus or blood be present the walls cannot be seen. It is difficult to estimate the exact size of the object examined, for the size as seen through the instrument varies according to its distance from the prism.

Electric cystoscopy is by no means a simple method. To be successfully applied considerable dexterity is needed, while the apparatus is both complicated and cumbrous.

While each of these instruments has proved a distinct aid in the investigation of the bladder, there is none perfect. The simpler kinds, such as Simon's, fail because the bladder walls are not distended; the more complicated, because the walls are not viewed by direct inspection. To examine the walls by direct inspection it is necessary that they should distend under natural influences, and not by forced measures such as practised by Rutenberg.

It has been left to Dr Kelly to discover that if the bladder is emptied of urine, the pelvis raised, and the urethra opened, the bladder walls separate. This phenomenon is exactly analogous to that which takes place if Sims' speculum is passed into the vagina when the patient is in the semi-prone or genu-facial position. When a woman lies on her back, with hips raised, and air is allowed to enter the bladder, the walls balloon out. This also occurs in the genu-facial or semi-prone postures. Then the whole of the interior of the bladder can be examined by direct inspection through a speculum with the aid of reflected light.

Kelly's Method.—Anæsthesia is not absolutely necessary, but in nervous patients and in inflammatory cases it should be administered. In ordinary cases the insertion of a pledget of cotton wool soaked in a 5 per cent. solution of cocaine into the urethra seven minutes beforehand is sufficient. The bladder is emptied with the catheter and the pelvis raised about 16 inches above the level of the table. The urethra is now dilated. This is accomplished by passing a series of S-shaped metal dilators. The diameters of the dilators are marked in millimetres. The series begins with No. 5 and runs in pairs up to No. 20. As soon as dilatation of from 12

to 15 millimetres is reached, a speculum of the same size as the last dilator is introduced and the obturator removed. The specula, like the dilators, vary in diameter from 5 to 20 millimetres; they are cylindrical, 9½ centimetres long, and each is provided with a conical mouth to assist in reflecting the light into the bladder. A residuum of urine always remains in the bladder after the catheter has been used; this is removed by a simple suction apparatus. The examiner puts on a head mirror and reflects light down the speculum. During the day sufficient light can be obtained from a window; at other times from a gas jet, a lamp, an electric drop light, or, if the room be dark, from a candle.

The bladder can now be inspected. Kelly says:—"The posterior wall of the air-distended bladder lies from 2 to 5 centimetres distant from the anterior wall, and over this white background, which first presents itself to the eye of the observer, is visible a beautiful network of branching and anastomosing vessels. The veins accompanying the arteries are easily distinguished by their dark colour. The larger vessels evidently come to the surface from the deeper layers of the bladder, where they branch stellately, divide, and anastomose. By elevating the handle of the speculum the field of vision sweeps over the base of the bladder until in some cases the region of the inter-ureteric ligament comes into view, often marked by a slightly elevated transverse fold or a distinct difference in colour. By turning the speculum thirty degrees to one side or the other and looking sharply, a ureteral orifice is discovered. While inspecting the ureter I have frequently observed little jets of urine ejected at short intervals, like a miniature fountain; in pathological cases I have seen pus and blood flowing from one ureter while the other discharged normal urine. . . . The bladder mucosa is usually of a slightly deeper rose colour around the ureter, and in the presence of an inflammatory process it even appears deeply injected. . . . In order to ascertain whether it is the ureter which lies within the field, I use as a searcher a long, delicate sound, with a handle bent at an angle of 120°, which is introduced through the speculum into the suspected ureteral orifice. If it be the ureteral orifice which is under inspection, the searcher passes easily from 2 to 6 centimetres up the ureter, and the lateral walls of the orifice are slightly raised, appearing as distinct folds with a dark pit between them. The searcher may be withdrawn and a ureteral catheter at once introduced, if it is desirable to collect the urine direct from the kidney. The catheter may be left in place some minutes or an hour or more. The urine which accumulates in the meantime in the bladder necessarily represents the discharge of the opposite kidney. In this way the urine of both kidneys may be isolated by simply introducing one catheter. By placing the patient in the genu-facial posture, an extreme distention of the bladder is obtained in the form of a flattened ovoid. In this posture the

inter-ureteric ligament also comes sharply into view; but the ureters are not so readily seen, as they are concealed by the outer extremities of the fold. The genu-facial posture is indispensable in some inflammatory cases, when the bladder will not balloon out in the ordinary posture, owing to its thickened walls. A satisfactory inspection can also be made in many cases in the semi-prone position by elevating the pelvis on a pillow."

Inspection of the Urethra.—The whole of the interior of the urethra can be thoroughly viewed on withdrawing the speculum. If this be done slowly and carefully, each line of the canal can be distinctly seen. In colour it forms a marked contrast to the bladder. The mucosa of the latter is pale, while that of the urethra has a purplish-red appearance. Its longitudinal folds are also visible.

I will not enter into the relative merits of palpation and inspection, but will simply state that whenever the latter can be thoroughly practised, as in the manner just described, it must be more exact than palpation. An additional advantage of Kelly's method is that palpation can be employed as well as inspection,—the object can be first viewed through the speculum, and subsequently palpated through the urethra, which is already dilated.

To conclude, I think Dr Kelly may justly claim for his method that it is simple, easily performed, and that as a diagnostic means it is most satisfactory. As far as I know, it is followed by no bad consequences. It is not only valuable in diagnosis, but is of great service in treatment; as through the specula instruments can be passed, and agents applied directly to the diseased area. By passing probes along the ureters the location of these structures can be recognised, and consequently avoided in such operations as hysterectomy.

I consider that this simple plan will inaugurate a new epoch in the investigation of vesical and urethral affections,—an epoch only second in importance to that which followed the introduction of Sims' speculum in vaginal and uterine examinations. I now add inspection of the bladder to the other means of exploration in gynæcological cases, and during the last three months I have included it in my practical course, and have taught my students not only to inspect the bladder, but to catheterize the ureters.

The President thought the advantage of Kelly's method was the simplicity of the instrument used. The electrical apparatus had always to be kept in order, and he agreed with Dr Brewis that it would require some experience before one became familiar with the appearances which it gave. He had seldom seen permanent incontinence following urethral dilatation.

Prof. Simpson said the Society were much indebted to Dr Brewis for his interesting communication. He (Prof. Simpson) had been impressed, on reading Dr Kelly's paper, with the value of the

method which, with characteristic enterprise and ingenuity, Dr Kelly had devised for exploring the female bladder. He had not yet attempted to put it in practice, because it seemed to require a rather complicated set of implements, and he had said to himself that the method was sure ere long to be developed in a simple fashion that would allow of its more frequent employment. Dr Brewis's paper had shown that this simplification was attainable, and the success which he had experienced would encourage them to have recourse to the use of Kelly's method in some of the more difficult cases of vesical trouble.

Dr Haultain said he thought the Society were indebted to Dr Brewis for bringing before them Dr Kelly's method of inspecting the bladder. Doubtless it was a distinct advance in bladder exploration, but he must say that the cystoscope seemed to have its advantages over this new method, and he could speak from a very considerable experience in the use of the former. Firstly, the cystoscope did not entail in the least degree the disturbance of the normal relation of parts,—the patient could have her bladder thoroughly examined, and walk home immediately afterwards. By Kelly's method anæsthesia was almost a necessity, and the necessary dilatation and tearing of the urethra required confinement to bed for some time after. It was, in fact, a surgical operation. It had been urged by Dr Brewis that the view got by the cystoscope was unnatural, from the bright illumination, while from Kelly's direct method a better conception of the normal condition of the bladder mucosa could be obtained. Now, he considered this merely a matter of comparison from a certain standard, this standard no doubt differing in appearance with the direct and reflected method, yet both represented the same thing, and could only be compared with the seemingly normal condition, which could only be arrived at from the experience of previous examinations. Perhaps the greatest objection to the method was the dilatation of the urethra, a procedure he always to a certain extent dreaded, having seen two or three cases of permanent incontinence resulting from it; he therefore considered that for an ordinary diagnostic examination of the bladder the cystoscope should, if possible, always first be used before such extreme measures were resorted to. The great advance in the method seemed to him to be the catheterization of the ureters, which would throw much light on the state of one or both kidneys, a most important point before performing nephrectomy and other operative procedures.

Dr Brewis, in reply, thanked the Fellows for their kind reception of his paper. He admitted that electric illumination with the Nitze cystoscope gave excellent results, but they did not equal those obtained by Kelly's specula, because with the latter the interior is viewed by direct inspection, applications can be made directly to diseased areas, and the ureters can be catheterized. Dr Brewis had dilated the urethra a great number of times to admit

the forefinger, and had never had a case of permanent incontinence. In one case only the incontinence lasted forty-eight hours. He had out-patients with bladder affections coming to him, and returning home immediately after applications of perchloride of iron, iodine, carbolic acid, etc., were made to the affected parts. In these cases he used a speculum with a diameter of 12 millimètres, and not even temporary incontinence followed.

IV. *Dr Berry Hart* read the following NOTE ON A SIMPLE MEANS OF RECORDING AND INDEXING MEDICAL LITERATURE :—

All of us must have felt the necessity of using some means of recording and indexing for future use the results of our professional reading. When one is reading of some special subject, it is easy to summarize and record it in a special note-book ; but the task of doing the same in miscellaneous steady reading in, say, midwifery and gynæcology is much more difficult. The difficulty is increased, too, by the fact that one's reading is not always done at home, but in some of our medical libraries. We may then not have a note-book with us, and a reference is neglected, and only recovered afterwards by a tedious hunt through journals, year-books, or in the *Index Medicus*.

Another difficulty in regard to note-books is the indexing of subjects. This takes time, and is usually grudged by one. For some time past I have used the following plan, and think it worthy of a test by others than myself.

I use slips of thin tough paper, semi-transparent, gummed at one edge, and easily carried in a small case. These can be used as follows :—

1. When studying a paper, one writes first on the slip the exact title of the paper and journal, etc., in which it appears.
2. If necessary, a short abstract or summary of the contents of the paper may be jotted down at the time.
3. Any reference to another paper likely to be consulted can be noted on another slip for future use.

To index these I take a standard text-book in gynæcology and midwifery, and gum these slips in at the part of the book where the subject treated of in the paper is considered. By this means I collect under each heading of the text-book the new literature on the subject. It is therefore at once available for revision, lectures, or preparing new editions of text-books. The slips may also be used in the following way :—

4. Lecturers may write on them more recent and correct statements of details, and gum them in over the older view, thus preserving both.
5. Illustrative cases from hospital or private work can be shortly summarized and inserted appropriately.

The special advantages of this plan seem to me to be its simplicity, portability, and the saving it is to one's time and memory.

The slips and case may be had from Messrs Macniven & Wallace, 139 Princes Street, Edinburgh.

V. *Dr J. W. Ballantyne* communicated the following summary of a paper on the ANCIENT GREEK AUTHORS AND INTRA-UTERINE INJECTIONS, by *Dr Georges Coromilas*, Calamata, Greece:—

The author claimed that there was evidence in the writings of Hippocrates, Oribasius, Paulus Aegineta, and Galen to show that these writers were acquainted with the use of *intra-uterine* injections. Hippocrates divided the generative organs into three parts,—first, the external genitals; second, the genital organ or vagina; and third, the uterus. He also used for each a special kind of substance to be injected: wine with honey for the external genitals, goose's grease for the vagina, and oil with honey for the uterus. Author believed that Hippocrates was the first to make intra-uterine injections.

MEETING VIII.—JULY 11, 1894.

DR A. H. FREELAND BARBOUR, *President, in the Chair.*

I. *Dr J. Stuart Nairne*, Glasgow, showed specimens illustrative of early OVARIAN and TUBAL DISEASE.

II. *Dr Felkin* showed a CAST OF UTERUS, and read the following description:—Mrs B. sent for me on the 30th May; she had just arrived from the south. She complained of purging with great pain, great pain on passing water, and much abdominal pain. No cause could be elicited. The urine contained pus, blood, and a large amount of sugar. The patient is a nervous woman, aged 39; she has been married to her second husband for six months. Four years ago she had a miscarriage at about the second month. Has always been remarkably regular. She ought to have been unwell ten days ago. On examination, the abdomen was found to be distended and very painful to the touch, especially over the pubes. The labia were œdematous, tense, and painful; the finger could hardly enter the vagina. The anus was surrounded by a dusky pink ring. I was at a loss to know what gave rise to those symptoms till I found the label I now pass round, and seeing that there was no chemist's name on it, my suspicions were awakened, and on definite inquiry found that the patient, dreading that she was pregnant, had taken, on the 26th May, one shilling's worth of the powder, which is composed of equal parts of aloes and cannella. No result following, the next day she took two large seidlitz powders, and the next day another shilling's worth of the powder. She told me that the pain and purging had been very great. On June 2nd she

passed one of the casts, and on June 4th the second. The bladder gave considerable trouble, but she made a good recovery. I think that the case is interesting in many ways; and as the preparation my patient used is, I hear, not commonly employed for such purposes in Scotland, I ventured to bring it under the notice of the Fellows of the Society.

III. *Dr Brewis* showed a FIBROID UTERUS AND PLACENTA removed by HYSTERECTOMY.

IV. *Dr Fothergill* showed, for *Prof. Simpson*, an early EXTRA-UTERINE GESTATION and a small PAROVARIAN CYST.

V. *Dr Benjamin D. C. Bell* communicated the following CASE OF RETAINED MENSES, WITH PERFORATION OF BLADDER:—

Feb. 28, 1888.—L. M., female, aged 26 years, unmarried, never before pregnant, sent into hospital, by midwife thought to be pregnant. Menstruation always very scanty, not more than a few drops at each period; abdomen swollen size of six months' pregnancy; hectic; night sweats. Temperature: morning, 100° F.; evening, 102° F. Weight, 7 st. At times paroxysms of abdominal pain came on; hence the idea of the midwife, who first saw her in a dark box-bed in a bothy, that she was in labour. On making examination per vaginam, the hymen was found entire (with the exception of a minute perforation) and of great firmness. The *meatus urinarius* was very patulous, admitting easily the forefinger. Pus was oozing from the meatus.

Diagnosis: Retained menses, distending enormously the vagina, pushing up the uterus; pressure of retained menses had caused perforation of the bladder wall, hence causing menses to become septic, causing hectic fever.

Treatment.—March 16.—An incision was made with knife into hymen, which was so thick that, after entering the blade some 2 inches and getting no pus, a curved trocar and canula was substituted. On introducing this some 3 inches, and on withdrawing the trocar, out gushed the most vile-smelling pus; three pints were removed in this way. After washing out the vagina daily with weak carbolic lotion, the temperature became normal in ten days. The opening made in the hymen was now dilated daily till it could admit a bougie 3 inches in circumference. Owing to the swollen condition of the vaginal walls, no os uteri was made out up till the time she left for her home on June 16th, when she had menstruated normally through the natural passages, and no pus coming per urethra. Weight in these four months had increased to 10 st., being an increase of 3 st. in four months.

After-history.—Oct. 25, 1889.—Above patient called to report herself as being in perfect health, with the exception of slight bladder irritation. On examination, vagina found normal, with the exception of small dimple on anterior wall, through which a

drop of menstrual fluid now and then finds its way into bladder. Menstruation otherwise normal. Uterus normal.

June 1890.—Patient sent in from an island twenty miles off; thought to be by the "midwife" in same condition as in Feb. 1888; but as patient was looking the picture of health (with the exception of an abdominal swelling), this theory was out of the question. On examination, found her six months pregnant, her sweetheart having had illicit connexion with her at times, dating as far back as early in 1887, so accounting for the patulous condition of the meatus urinarius noted at the first examination on Feb. 28, 1888.

Sept. 1890.—Patient delivered of a still-born male child; made a good recovery. At this date (May 1894) is in perfect health.

VI. *Dr E. H. Lawrence Oliphant*, Glasgow, read the following CASE OF OCCLUSION OF THE VAGINA IN A PRIMIPARA, OBSTRUCTING LABOUR:—

Early in January of this year I received a message by telephone from my house-surgeon informing me that he had admitted to the hospital a patient brought in from the country. She had been a considerable time in labour, but though the membranes were said to have ruptured thirty-six hours previously, he was unable to find the os. As usual in an emergency, the telephone was working badly, and I should have understood that he could not *reach* the os. I had some time previously been troubled by a case in which the os uteri would admit no more than a probe after the woman had been three days in labour; but on bringing her into hospital with the intention of incising the cervix, I found that the hot bath or the chloroform, or both, opened up the os rapidly, and the labour had terminated shortly after. Accordingly, in the case before us, I told the house-surgeon to try the effect of chloroform, and ring me up again if it failed.

Shortly after, a cab came for me, as the telephone could not be got to work at all. On reaching hospital I found that the vagina was obstructed by a diaphragm through which a sound only could be passed, that the discharge was offensive in odour, and that she had been brought into town by the medical man who accompanied her with a view to delivery by Cæsarean section. Unable to obtain a bed at the nursing institution, he had brought her to hospital.

I satisfied myself by examination that both bladder and rectum were not dragged in front of the presenting part, which abdominal palpation showed to be the head. Accordingly, I proposed by incision and Barnes's bags to dilate the minute opening in the diaphragm; but though I pointed out that even in the event—which was unlikely—of having to revert to abdominal section, it would be essential to have free drainage per vaginam as a preliminary, the doctor who had brought her in was so urgent on the risks of

tearing into rectum and bladder, that I decided to ask my friend Dr Wm. Reid to see the case with me.

By the time he came the parts had so far softened as to allow the finger to pass through the diaphragm and reach the cervix. The os uteri was found to be about the size of half a crown, and the lips were free from the diaphragm, except posteriorly, where the cervix and diaphragm combined to obliterate the posterior fornix.

Dr Reid now advised simple expectancy, to allow the os to open and let the head itself dilate the now softening diaphragm. About twenty hours after I first saw her the head was resting on what felt now like an elastic ring in the vaginal walls. It caused little obstruction to delivery by forceps, but I thought it advisable to make a few minute incisions on each side to obviate any risk of deep tearing in the direction of bladder or rectum.

On dismissal a fortnight later, the posterior lip of the cervix was found to be adherent to the posterior vaginal wall. Otherwise no trace of the diaphragm was to be felt.

The patient had never suffered any injury to the vagina, and had never had any symptoms to draw attention to the vagina, though she had suffered from scarlet fever in childhood, so it is possible that the obstruction may have been congenital.

I have thought this case worth bringing before the Fellows as an example of the extent to which stretching of the soft parts may go, —an extent apparently not always appreciated duly, as is evidenced by the more heroic treatment advocated in this case.

VII. *Dr J. G. Havelock*, Montrose, read the following paper on AN EPIDEMIC OF RELIGIOUS MANIA ORIGINATING FROM A CASE OF SPURIOUS PREGNANCY:—

Young unmarried women of a hysterical temperament, after illicit intercourse not infrequently closely simulate the symptoms of pregnancy, and no harm results; but an outbreak of religious excitement in eleven persons terminating in acute mania, which followed on such a case, is perhaps worthy of record.

In a small country town there resides a family of well-to-do artizans with a history free from any trace of insanity. The parents are in the prime of life, while their four sons and five daughters are adolescents. The favourite daughter, a shop assistant in a neighbouring city, at the beginning of this year falling into bad company was seduced, and soon afterwards, alarmed at the suppression of her menstruation, consulted a medical man, who suggested the possibility of pregnancy.

Returning to her home in a state of great mental perturbation, she locked herself into her bedroom for several hours. When interrupted by her friends, she was found to be in a state of religious ecstasy, declaring that she had communed with God, who had revealed to her that she was about to die, and that Christ would appear to receive her into His arms.

Moved by her earnest protestations, the family gathered round the bedside and sent off for her father and brothers, who were working in neighbouring towns; and, influenced by the contagion of her example, began also to engage in prayer and anticipate the immediate coming of Christ.

When the father arrived on the scene he found the whole family in a state of great religious excitement. His house had been divided by them into a part they called "Heaven" and a part called "Hell;" the mother, who did not completely fall in with their views, having, of course, been consigned to the latter division.

Attempts by the parents to reason with and control their children were unavailing; unable to stem the torrent, the father and mother were soon as excited as the rest. For several days matters went on in this way: little food was taken, there was no sound sleep, day and night were spent in religious exercises in preparation for the immediate coming of Christ. The mental symptoms in all consisted of a state of ecstasy with hallucinations of sight and hearing, and an overpowering desire to pray and preach.

At the end of a week the father came to his senses, and made strong efforts to induce his family to resume their ordinary mode of life. During an altercation which ensued, the eldest son jumped through the window in a semi-nude state, followed closely by the daughter who had been the originator of the mischief. Both were at once arrested by the police, and, having been certified to be insane, were consigned to the nearest asylum.

On admission, the male patient was found to be a well-developed muscular man, with no evidence of bodily disorder. He was wildly excited, gesticulating and shouting in an incoherent way, with hallucinations of sight and hearing. During the first week he did not converse rationally, had well-marked hallucinations, and was very restless and noisy at night. Improvement then rapidly set in, and at the end of a fortnight he was discharged recovered.

The female patient showed very similar mental symptoms. She, however, was more coherent, and gave a rambling account of her seduction, always winding up with "But my sin is forgiven me; what man put into me God has taken out of me." She had many of the signs of pregnancy,—*e.g.*, amenorrhœa of some months' duration, a milky fluid could be expressed from the enlarged breasts, and the areolæ were altered. In the course of a few months, coincident with an improvement in the mental condition, these spurious signs of pregnancy disappeared.

The remaining members of the family, sobered by the removal of the ringleaders, soon resumed their ordinary way of life, and have remained well since.

Remarks.—The history of this case is of considerable interest when we compare it with the origin of the outbreaks of epidemic insanity occurring on the continent of Europe during the Middle Ages. For instance, we read that in 1260 a boy in Perugia

prophesied a great calamity, and thence arose the famous epidemics of *Flagellants* and *Scourgers* which spread throughout Europe. More recently, in Sweden (1841–42), there was a well-marked epidemic of *Religious Ecstasy*, which affected a large number of the country people in the recesses of the kingdom, and was attributed to poverty and the action of fanatical excitement. Modern civilisation has rendered widespread epidemics of insanity almost impossible. The fanatic of to-day, who in remote ages might have swayed thousands, finds himself after a short career within the walls of a lunatic asylum.

VIII. *Dr Brewis* read the following NOTE OF A CASE OF HYSTERECTOMY DURING PREGNANCY:—

Mrs N., æt. 44, from Fifeshire, came under my care a month ago. She had no family, and had menstruated regularly till January of this year, from which time there had been amenorrhœa. She complained of a hard swelling in the abdomen, which on examination was found to extend to a point about 2 inches above the umbilicus. On the right side the swelling was hard and nodular; on the left it was soft and elastic. A well-marked uterine bruit was heard, but no fœtal heart sound could at any time be detected. The patient, however, averred that she felt movements. On vaginal examination the pelvis was found to be occupied by two hard, somewhat round tumours, one in front of the cervix pressing on the bladder, and one behind impinging on the rectum. The cervix was wedged between these tumours, and had the softening which is characteristic of pregnancy.

Diagnosis.—The case was evidently one of three conditions:—First, pregnancy in a fibroid uterus. There was no doubt that the patient had a fibroid uterus, because the growths could be felt, but about the pregnant state there was some uncertainty, as the fœtal heart sounds could not be heard. The softening of part of the abdominal swelling and of the cervix, along with the history of suppression of menstruation, was, however, strong affirmative evidence.

The second possibility was that we had to deal with a fibro-cystic uterus. We know that fibroid tumours often undergo at the menopause a cystic degeneration of a malignant character. These tumours grow rapidly. There is usually some peritonitis and ascites, and the patients lose flesh. In this case those concomitants were absent.

Thirdly, We had to consider whether there was an ovarian tumour as well as the fibroid. In the left half of the abdomen the physical signs were quite consistent with those of an ovarian cyst, but as no line of separation existed between the hard and the soft portions, this possibility was diminished.

Treatment.—Assuming that we had to do with a pregnancy in a fibroid uterus, advanced to the fifth month, two alternatives presented themselves: first, to induce premature labour; secondly,

to deliver through the abdomen. The former of these was considered impracticable, as the obstruction in the pelvis, caused by the two subperitoneal fibroids already mentioned, was such that even a five months' fœtus could not have been got through.

Abdominal section seemed the right procedure, because it would make our diagnosis clear; and if the condition of affairs was as we anticipated, the uterus with its contents could be removed.

Operation.—On opening the abdomen the right portion of the swelling was found to contain a number of interstitial fibroid tumours; the left was soft, and probably contained a fœtus. A supplemental fibroid as large as a fist grew from the posterior aspect downward into the pelvis. Another tumour of similar size grew under the peritoneum in front and pressed on the bladder. The former was movable, and along with the body of the uterus was brought through the abdominal wound and removed, after the latter had been encircled with a wire and constricted by means of Tait's modification of Hoëbert's clamp. The uterus contained a five months' fœtus. The pedicle was very broad; its size was reduced by clipping away portions of it with scissors; the ovaries were also removed. The patient made an excellent recovery.

IX. *Dr J. Haig Ferguson* read the following NOTE ON A BROAD LIGAMENT CYST REMOVED BY ENUCLEATION, and which was so tensely filled with fluid (about two quarts), that its pelvic portion before operation gave all the physical signs of a hard, solid tumour:—

I venture to record the following case chiefly for the sake of the interest attaching to its diagnosis, from its anomalous physical signs, which only serves as a further illustration of how uncertain one often must be of the exact nature of an abdominal or pelvic tumour before operation.

Miss J. A., æt. 55, came to me from Dr Crombie of North Berwick about a month ago, complaining of abdominal discomfort, frequency in passing water, and a painful swelling in her side. She had first noticed the swelling in October 1893, and the other symptoms had gradually developed and increased since then. She did not think the swelling had increased much in size since she first noticed it.

She had always been perfectly healthy and strong till the present illness began. She ceased menstruating at the age of 50 (five years ago), having begun at the age of 15. Her periods latterly had been very profuse, and she had a flooding just before menstruation entirely ceased.

The digestive system and bowels were normal.

The patient is spare, but with an extremely healthy appearance, and looks young for her age.

On examining her abdomen, a swelling, somewhat tender on pressure, and nearly as large as a cocoa-nut, could be felt in the middle line. It was obscurely fluctuating, and dull on percussion.

A vaginal examination was impossible, owing to a rigid hymen.

Per rectum, a round hard tumour, about the size of a fœtal head or larger, could be felt fixed in the pelvis, giving no evidence of fluctuation, and so different in consistence from the swelling felt through the abdomen, that they seemed to be different structures, though no separation could be felt between them. The uterus could not be felt per rectum. The lumen of the rectum was considerably encroached on by the pressure of the tumour.

I declined to come to any definite diagnosis till I could make a vaginal examination. This I had an opportunity of doing two weeks later, when she returned to town, and I examined her under chloroform. I found the uterus slightly raised in the pelvis, and flattened out against the hard, apparently solid growth, which nearly filled the brim of the pelvis, and bulged down into the posterior fornix. The abdominal cyst could still be felt fluctuating on bi-manual examination, but I could not differentiate it as being separate from the solid tumour below. The whole tumour was fixed in the pelvis. The cervix had the senile characteristics, and the os was directed backwards. The uterus could not be separated from the tumour, and it was stretched out beneath it in such a way as almost to give one the impression that the tumour grew from its posterior wall.

I was unable to pass the sound more than one inch, as the uterine cavity seemed twisted. The uterus felt fairly normal as regards size, but gave the impression of being somewhat elongated. It was lying more to the right side, and was anteverted.

Many of the physical signs pointed to a semi-solid intra-ligamentary tumour, but the pelvic portion was so hard and firm that it felt more like the consistence of a fibroid of the uterus, and the patient's menstrual history lent some weight to this view. Taking this view, the abdominal cyst was quite a distinct and separate growth. The possibility of a fibro-cystic tumour of the uterus had also to be kept in mind; this was, however, unlikely, both from the age of the patient and the absence of a souffle.

On opening the abdomen, the cyst was exposed, and was found to be thin-walled, bluish in colour, and intimately associated with the left broad ligament. It had originally been entirely inter-ligamentous, but had burst through the ligament above, while its lower part lay deeply imbedded between the layers of the broad ligament. It thus lay in the broad ligament very much as an egg does in an egg-cup.

On tapping the cyst, fully two quarts of a limpid straw-coloured liquid were drawn off,—much more than, from its apparent size, one would have expected it to contain. To my surprise, I found that the mass in the pelvis, which had seemed to be so hard and solid, had collapsed after the tapping, and that, after all, there was only a single simple cyst to deal with. The cyst was unusually easily enucleated from the broad ligament, and the patient has made an excellent recovery.

The interesting and instructive point in the case is, that two such diverse physical signs should be given by one simple thin-walled cyst,—the fluctuation of that part of it which had escaped from pressure of the broad ligament, and the firm hardness of that part of it which remained inter-ligamentous.

X. *Dr Richard J. Erskine Young* communicated the following CASE OF SEVERE MENSTRUAL HEADACHE SUCCESSFULLY TREATED BY PREMENSTRUAL VENESECTION:—

The patient, Miss H., aged 29, came to consult my father, Dr James Young, in February 1893. She complained of most intense headache, which she said began coincidently with the menstrual epoch, accompanied it, and disappeared only about four days after the cessation of the discharge. Menstruation began at the age of sixteen. From that time until March 1893 she continued to suffer intensely from this condition, superadded to which was a distressing sense of weight and fulness in the head. It was so severe that she could not lift up her head, being thus rendered entirely unfit for duty, both during menstruation and for several days afterwards. She was naturally of a somewhat plethoric *habit* of body. The palpebral conjunctivæ were somewhat injected in appearance. The pulse was large, full, and somewhat incompressible. She complained also of throbbing in the temples. For a few months previous to this time she had suffered from dysmenorrhœa, which was accounted for by a degree of uterine congestion which was present. This condition yielded to glycerine packing, and not douching. The headache, however, was quite as severe as before,—the same condition, in fact, which had obtained since puberty.

On seeing the case with my father, I suggested the performance of venesection three or four days previous to the next menstruation. Having obtained the patient's consent, and since the next catamenial flow was expected on Tuesday, March 14, I arranged to perform general bloodletting on Saturday, March 11. The menses, however, unexpectedly appeared on the latter date, and of this fact I was informed only on the Monday. Before performing venesection, I took a sphygmogram (Fig. 1), which I now show you. If you

FIG. 1.—Before the First Venesection.

will kindly examine this tracing, you will observe the high upstroke of the lever, thus showing the bounding character of the pulse.

I then drew blood to ten ounces; a few hours after which, I again took a sphygmogram (Fig. 2), which shows well the absence of the

FIG. 2.—After the First Venesection.

bounding character. The patient experienced slight faintness on sitting up for twenty-four hours after the operation, but which disappeared after a few days. For the remainder of the menstrual period, and afterwards, the headache, sense of weight, and oppression were almost *nil*, and that for the first time since puberty. I now allowed about four weeks to elapse, and after careful consideration I decided to repeat the operation. I therefore visited her on Wednesday, April 5th. She said she had been very well except for slight headache for a few days previous to my present visit. I found the pulse again somewhat full and bounding. Having taken a pulse tracing (Fig. 3), I performed venesection to eight

FIG. 3.—Before the Second Venesection.

ounces, with no unpleasant result. Next day I visited the patient, and found her well and free from any headache whatever, even though the catamenial flow had begun. On this occasion the sphygmogram (Fig. 4) shows entire absence of the bounding character, with slight increase of tension.

FIG. 4.—After the Second Venesection.

On Wednesday, April 12, I saw her. The pulse was good. She was quite free from headache, and expressed herself as being as well as could be desired. The patient has continued to report herself at intervals from that time up to the present, and I am glad to say that she has always the same tale to tell, viz., that though menstruation has appeared regularly, it is neither accompanied nor

succeeded by headache, weight, oppression, nor any unpleasant sensation whatsoever. I can find no other cause for this result than a timely moderate venesection.

There are, I think, few members of the medical profession who will not allow that bloodletting has a perhaps increasing sphere in the treatment of certain diseases. In such, then, let us not neglect it.

XI. DISCUSSION—"SHOULD ANTISEPTIC VAGINAL DOUCHING BE MADE A ROUTINE PRACTICE IN THE PUERPERIUM."

Dr J. Halliday Croom, in opening the discussion in the affirmative, said,—The subject on which you have asked me to inaugurate a discussion seems to me one upon which most men uphold similar, if not the same opinions, and therefore the field left for argument is considerably curtailed.

Antiseptic douching of the vagina was introduced into routine practice when antiseptics as a system were adopted by obstetricians. It formed an integral part of the antiseptic management of labour and the puerperium. The objects aimed at in the antiseptic system are:—The prevention of the introduction of germs, *i.e.*, antisepsis before confinement, and paralysing their action, *i.e.*, antisepsis after confinement.

Although at the first the methods were complex, including even the adoption of the spray during delivery, yet all that is left now to us of the routine use of antiseptics is their application to fingers and instruments, and the antiseptic douching of the vagina before and after labour. Now, I think no one would question for a moment that the routine use of antiseptics has been the greatest addition to obstetric practice since the introduction of chloroform. This is not the occasion for me to point out the revolution which antiseptics has brought about in childbed mortality. The records of Paris, Copenhagen, Prague, London, and Edinburgh are sufficient in themselves to illustrate this point. The reduction of mortality from 15 per cent. to *nil*, as was the case in Paris, is in itself a sufficiently startling example of the brilliant results thus achieved, and the fact remains that this system of antiseptic midwifery alone is responsible for the diminished mortality.

Doubtless antiseptics have played a more important part in hospital than in private practice. There the results have been specially marked, and this in a great measure is due not only to scrupulous cleanliness on the part of doctor and attendants, but in a great measure to the regular and careful antiseptic washing, not only of the vulva, but of the vagina as well, by means of the vaginal douche. The hot carbolized douche previous to labour is perhaps of equal importance to post-partum washing. I believe that many cases of sepsis after labour could be avoided by careful removal by douching of secretions accumulated during pregnancy. In hospital practice, at any rate, I insist upon the vagina being

irrigated and the vulva washed before even a vaginal examination is made. With regard to post-partum douching, the dorsal decubitus tends to promote the accumulation of the lochia in the upper part of the vagina. In this position the drain is not free; and in a hospital with a large aggregation of women under similar circumstances, the débris remaining there are apt to become a focus for infection, especially as they are lying in contact with a recent wound at the cervix; and further, which is of no small importance, the warm carbolized douche, by keeping the lochia aseptic, prevents the pollution of the air of the ward, as it obviates the accumulation of putrid matter in the atmosphere. One must further remember that in labour in a hospital we are dealing with an unnatural condition of matters,—for that part, in every labour the conditions we have to deal with are unnatural. In ordinary labour among the savages the rapid assumption of the erect posture makes the drain free, and therefore neither vaginal douching nor any other form of antiseptic interference is required; but the more complicated the surroundings of the patient become, the more needful is it to take artificial means to prevent sepsis. In a hospital, at any rate, I should advocate the routine use of vaginal douching with some germicide.

In private practice the conditions and environments are no doubt somewhat different, but even then the principle is the same; and where douching can be carried out carefully and skilfully, I consider that any one who neglects it assumes a very serious personal responsibility. As a matter of fact, although no doubt of secondary importance, my experience is that patients in private prefer it from motives of comfort and cleanliness. It must also be kept in mind that a daily vaginal douche of antiseptic hot water will help to promote the involution of the uterus by stimulating uterine retraction.

The channels of infection in a puerperal woman are numerous. Two of these, viz., the perineal and the cervical tears, may at least be rendered harmless by regular douching. Of course, a good deal depends on the way in which this manipulation is performed. It is much better carried out with the ordinary can douche rather than by any form of syringe. The water ought to be a hot solution (about the temperature of 115°) of some antiseptic, such as Condy's fluid or carbolic acid (1 in 60), or corrosive sublimate (1 in 5000 or 6000). About a quart of one or other of these solutions should be allowed gently to irrigate the parts twice a day. At the same time care should be taken that the vulva should be washed with a similar solution, and an antiseptic napkin applied thereafter. I attach much importance to this, as I am convinced that it is a very important factor in the prevention of puerperal septic fever with or without inflammatory changes in the pelvis. The objections urged against this system are all, to my mind, more imaginary than real. The main ones are—(1), the opening up of

the vagina and thus permitting the entrance of air; (2), the introduction of air through the irrigator; (3), injury to the parts; (4), the toxic action of the germicide used; and lastly (5), exposure of the patient. It will be observed that these objections all take for granted that the little manipulation is performed unskilfully. The same argument might apply to *any* manipulation. To object to any operation because it is not performed "secundum artem" is absurd. The same might apply to the use of forceps or the use of anæsthesia. A woman is much better delivered without an anæsthetic than to have an overdose of it; and it is a choice of evils for a woman whether she will have forceps unskilfully applied or have a long labour. Certainly, if the vaginal douching cannot be performed without the patient running the risk of being poisoned with corrosive sublimate, or having her vagina injudiciously opened up by an unskilful nurse, or have herself unduly and roughly exposed, she is much better to be left alone to discount her risks of sepsis. But in the hands of a proper nurse I believe that systematic vaginal douching is not only perfectly harmless, but of great utility.

Dr James Ritchie, in opening the negative, said that when we examine the mortality returns of the Registrar-General for Scotland, we find that during 1889 there were registered 277 deaths from puerperal fever, and in 1891, 378 deaths from the same cause. Probably, also, a considerable number of the cases classed as metritis and pyæmia were due to septic poisoning during the puerperium. When we consider that the large majority of these deaths are preventable, we are constrained to enter on the discussion of any question affecting the treatment of childbirth with a feeling of considerable responsibility. He did this with an open mind, and with the desire that the truth might be elucidated, and that his opinions and practice might be brought into accord with the truth, wherever it might be found to abide.

From the day when Dr Ritchie heard his revered friend and teacher Prof. Sir Joseph Lister deliver his inaugural address in the Chemistry class-room of Edinburgh University, on the Germ Theory of Putrefaction and its relation to Suppurative Processes in Surgery, he felt that a new light had fallen upon his eyes; and since that time he had had not only an unabating but an increasing belief in the antiseptic treatment of a great variety of diseases, although perhaps the methods of treatment had undergone considerable change. He well remembered how, in the early days of his medical studies, it was thought to be unsafe for those who did surgery to attend confinements. Of course there were, all over the country, very many general practitioners who had to do both, but the danger of surgical cases to lying-in women was recognised. Since the development of the antiseptic method we find no such incompatibility.

If any one has any doubt of the value of strict antiseptic treatment in midwifery, he has only to turn to statistics of results in maternity hospitals before and after the introduction of the antiseptic system to have his doubts removed—*e.g.*, those of the large Lying-in Hospital in Vienna, in which the mortality was reduced from almost 10 per cent. to even less than 1 per cent. The records of the Maternity Hospital of Paris show a similar improvement, and so we might continue to extend the list with similar results in other countries.

In every case of confinement one of the dangers to be guarded against is that of septic infection, and he went to every case with this fully in view. The infection might arise in a variety of ways.

1. In the patient herself.
2. Because of an insanitary and infectious condition of the house.
3. It may be communicated by the hand of the nurse.
4. It may be introduced by the medical attendant.

In order to guard against infection by the first source, should every patient receive an antiseptic douche at the commencement of labour, before the passages have been bruised and torn, thereby having formed in them a number of absorbing surfaces? Garrigues of New York advocates this procedure. In some cases in which there exists leucorrhœa, or other vaginal discharge, it is necessary; and it is Dr James Ritchie's practice to institute antiseptic douching even earlier than this, viz., some weeks before the onset of labour.

As to the second source of danger, probably sad experience has taught us all to examine the lying-in room beforehand with the view of ascertaining whether the sanitary conditions are favourable. But in very many cases all over the country the room has to be accepted as it is found. Danger arising from this source is one which largely affects treatment in maternity hospitals, in which, from the constant succession of delivery cases, there is a necessity for special disinfection of wards. Without this, antiseptic treatment could not be fairly carried out. The details in this respect are some of those which pertain to certain localities and times, and do not apply to all places and times.

The third source of infection—the nurse, her clothing and hands—is also of importance. It is not an unnecessary precaution to guard the nurse against attending to her patient with hands which have not been disinfected, and specially to insist upon her washing the mother before she dresses the baby, while the stump of the cord is still *in situ*.

The fourth source of infection which was named,—viz., the hands and instruments of the accoucheur,—is, in general practice, by far the most important. However great the care taken to protect the patient against other sources of infection, it is of no avail unless

the most scrupulous care is observed by the medical attendant in regard to his hands, instruments, and clothing.

The question which we have to discuss is not the advantages of the antiseptic treatment of women during the puerperium; but, Is antiseptic vaginal douching a necessary part of the antiseptic method? In other words, as the question is put down in the billet for to-day—Should antiseptic vaginal douching be made a routine practice in the puerperium? Then, we suppose, if this question is answered in the affirmative, there would necessarily follow a second, viz., How often is it to be done? In the School for Midwives, St Petersburg, in 1863, every patient had her uterus washed out with a solution of chlorinated lime two or three hours after delivery, and this was repeated several times during the first forty-eight hours.

The question is not whether there are circumstances of place or condition, local or general, which demand that vaginal douching should be used while these exist, but ought it to be made a part of the ordinary routine of the puerperium, without regard to place or condition,—just as much, for example, as the ascertaining whether the placenta and membranes have been completely expelled.

We can hardly bestow too high encomiums upon those who have introduced, or who—like our friend Dr Croom—have helped to systematize strict antiseptic treatment in our maternity hospitals. But the question arises, Do there not exist in these hospitals special dangers demanding special precautions,—precautions which may also become a necessity under other conditions of place or of person? If so, is routine douching necessary in general practice out of hospitals? It may further be argued that because such magnificent results have been attained in hospital practice, therefore, as there is in every case some danger of septic poisoning, the antiseptic method, down to its most insignificant detail, should be invariably adopted.

The speaker did not think that we do wrong to ask this question, even although the practice of hospital physicians should be in favour of its general use, because he could quite understand that when any method has produced such a wonderful change in results, as the antiseptic method has done in our maternities, there might be the tendency to consider that every portion of the method which has been adopted is essential; and that hospital physicians, being impressed with the benefits of the system in their hospital practice, should have advised its use as a method of routine to be observed in all cases.

He had already pointed out that there are certain dangers peculiar to maternity hospitals, or at least common in them, but uncommon in private dwellings. It is possible that some methods which may be essential in them are not necessary in private practice. Is vaginal douching one of these? Probably the best

battle-ground for the discussion of this question is to be found in maternity hospitals, partly because statistics relating to them are more easily obtained than those relating to private practice, and partly because of the very marked improvement in results in them since the introduction of the antiseptic method. Have we any means of ascertaining whether the greatly improved results are due to the methods now generally used as a whole, or is there any one of the measures of supreme importance, or is any one of them unnecessary, or, at least, less so? The history of epidemics of septic fever in hospitals points to the frequent disinfection of the building, the bedding, and all the surroundings of the patient as being a matter of first importance, and the history of epidemics of septic fever outside of hospitals proves the great importance of the thorough disinfection of the person and the instruments of the accoucheur. What of the douching? Is this of equal importance? Is there any maternity hospital in which this is not adopted? Garrigues, of the New York Maternity Hospital, holds that it is not necessary even in hospitals. Before he introduced a careful system of antiseptic treatment into that hospital the mortality was nearly 8 per cent. from puerperal fever, and for a month nearly as high as 20 per cent. It is noteworthy that before his system was perfected he tried a method in which every patient received a vaginal douche before and immediately after delivery, and also morning and evening during the first eight days thereafter. Notwithstanding this care, the mortality from septic diseases was nearly 4 per cent. He had not at that time adopted the rotation of wards, the periodic and very careful disinfection of them; their ventilation was not so free, and the kind of antiseptics for attendants' hands and for douching was not perchloride solution, but a 2 per cent. solution of carbolic acid. After he had instituted the other measures just named, a vaginal douche of solution of bichloride of mercury, 1 in 2000, was given at the commencement of labour, but after that *no* vaginal injections were given, except in rare cases if the lochia became offensive. Under this method, with only a single douche, viz., at the commencement of labour, the total mortality during two years and ten months of what he calls prophylactic treatment was 0·98 per cent., and the mortality from septic causes alone was 0·42 per cent. This may be considered the more satisfactory when we learn that 42·64 per cent. of the cases were primiparæ. With these statistics before us, it can hardly be maintained that vaginal douching during the puerperium is a necessity.

But if not a necessity, is it a safe precaution even if it be superfluous? The first objection which he felt constrained to urge is that meddlesome midwifery is bad midwifery, that the less we require to interfere with parturient patients the better. Even in the matter of digital examinations, although no one would assert that with clean hands there is danger, it is none the less a wise

precaution not to examine a patient oftener than is really necessary to keep us informed how the labour is progressing. So on this ground, if douching be not necessary it is better not to employ it as a routine part of treatment.

Next, in douching, unless we have skilled and careful nurses, there is danger from mechanical disturbance of the injured vaginal walls, etc., by means of the tube, and the consequent creation of fresh absorbing surfaces. Although many of our number may be able always to have the services of skilled nurses, we are discussing the question in its general application.

Without skilled nurses douching may be, and has been, a source of discomfort and of abdominal pain.

A further danger is that of poisoning by means of the antiseptic used. The most efficacious are perchloride of mercury and biniodide of mercury, but there are on record many cases of poisoning by means, at least, of the former. It would not be safe to serve out these antiseptics indiscriminately to every woman who attends confinements. Even in the hands of skilled nurses they require to be used with care, specially in the case of anæmic patients and those with kidney disease. In Dr James Ritchie's experience, when the discharge has become slightly offensive and acrid, it is sufficient to use a solution of permanganate of potash.

To sum up: The antiseptic treatment of every case is essential. Dr James Ritchie did not believe that the sad record extracted from the Registrar-General's returns already referred to arose in consequence of the want of douching. The experience of the New York Maternity seemed to determine this view—that it arose from want of sufficient care either as to the sanitary condition of the lying-in room, or as to the hands of the attendants. The essentials of antiseptic treatment were, in his opinion, sanitary surroundings, and pure hands, instruments, and clothing. The routine use of vaginal douches during the puerperium he did not consider to be an essential part of the system. There were also certain dangers associated with douches—dangers which are greater at the hands of unskilled persons, and if due care were exercised in general practice it is safer not to use them. They ought to be reserved for those cases in which danger arises, and in which the less of the two dangers is the use of the douche with proper precautions.

Dr James Carmichael thought the subject at present under discussion was one of the utmost importance. He had given it a deal of consideration, and had been sufficiently long in practice to compare the methods of the present day with those formerly in vogue. Before answering the question of the propriety of antiseptic douches as a routine practice during the puerperium, he thought the question should be decided, first, in regard to natural unaided labour in private practice and in hospital; second, in regard to

difficult or aided labour. These were really two separate questions in regard to which he thought experienced obstetricians would be inclined probably to vary their practice. Natural unaided labour under ordinary conditions was a healthy and normal process. When labour was over, say in a primipara, the condition of all parts above the ostium vaginæ—even although, as often happens, there might be a slight vaginal or cervical tear—were aseptic. The condition of the external parts when there was a slight tear might become septic. If the first proposition be accepted regarding the aseptic condition of the parts above the ostium vaginæ, the question must be answered how these conditions are altered and elements of danger introduced from without. The reply to this is, that it is by the meddlesomeness of the accoucheur that this comes about. It follows that if the accoucheur, finding the labour to be a natural one, interferes as little as possible, and when he does introduce the finger renders it perfectly aseptic, no danger will result. The question then arises, Whether under these circumstances antiseptic douches are required? The only logical answer is, that such interference is meddlesome and unnecessary. In regard to internal tears and wounds in otherwise normal cases, of course the most rigid care and antisepsis, so far as possible, should be carried out by washing the external parts and using antiseptic pads. The second question, the use of antiseptic douches in aided or difficult or instrumental labours, is quite a different one. Here the necessities of the case renders the patient liable to all the dangers of the introduction of noxious elements from without; and in these cases I think the routine practice of antiseptic douches for some days after labour is a good one. The next question which requires an answer of a definite nature is, Should the treatment of a puerperal woman in this respect be different in a hospital from that recommended in a private house? The remarks I have already made apply to private practice. In maternity hospitals a new set of conditions come in. We have congregations of puerperal women, and notoriously the hospital may at any time be an infectious place in the general sense of the term. Physicians, nurses, and students are examining one case after another, the same instruments are used for all cases, and safety only depends on the thoroughness with which antiseptic precautions are used. Unfortunately, we cannot see the germs of infection, and we never *know* whether from want of thoroughness in our precautions they may not be present. Still, we do our best and carry out antiseptic precautions as strictly as possible. The records of hospital practice prove that under the new system puerperal mortality is largely diminished. I therefore think that routine douching in *hospital* practice is a wise course, always provided it is properly carried out. One of the most urgent matters requiring ventilation in regard to this subject is that of the instruction of nurses in regard to their duties in douching puerperal

women. I find that the nurses trained in the Edinburgh Maternity go into practice imbued with the idea that routine douching should be carried out in private practice as in hospital; not only so, but that they are entitled to have recourse to it without orders from the obstetric physician. I can hardly believe they are so instructed. If they are, such teaching is open to grave objection, in my opinion. I hold it to be the duty of all teachers of nurses to instruct them to act solely under the direction of the doctor in this matter, and also that for the purpose of vaginal douching they must make use only of a proper vaginal syphon douche, and not use a Higginson syringe. We can never be sure that a Higginson syringe is aseptic, nor that we may not, in using it, introduce air into the maternal passages. Vaginal douching requires great care and caution in its use, and my experience leads me to believe that nurses are often careless in carrying it out. The responsibility for the execution of their important duties devolves first upon the teacher, and secondly on the medical attendant, who should be careful to see all the minutiæ of after-treatment properly carried out. On the whole question, therefore, I am of opinion that we are not warranted in teaching our students and nurses that vaginal douching should be a hard and fast practice in all women, but that the obstetric physician, guided by sound principles, should judge each case on its own merits, and, as in all other cases, treat the patient as he finds her, rather than the puerperium as such.

Dr S. Macvie, Chirnside, said he contended that routine vaginal douching during the puerperium depended on its practicability as well as its necessity. In country practice, where the patient resided at a considerable distance, where the trained nurse did not exist, and the amateur nurse could not always be found sufficiently reliable,—where, nevertheless, the death-rate was practically *nil*,—it was difficult for the medical attendant to think, after doing all he could do, that he had not done all he ought to have done, in not douching the vagina twice daily for a week or ten days. He could not admit that a healthy woman was in a condition of sepsis at her confinement, and what was required was the maintenance of the aseptic condition. This could be done by thorough cleanliness in all the surroundings and the use of such an antiseptic as carbolated vaseline. He deprecated the meeting affirming the position taken up by Dr Croom; but at the same time felt assured that the discussion would incite everyone present, either by douching or other means, to obtain the end aimed at.

Prof. Simpson, being called on by the President, expressed his regret that his attendance at another meeting had hindered him from arriving in time to hear the opening paper of his friend and colleague Dr Croom. Whatever may have to be said in favour of routine douching of puerperal women in maternities, he was largely in agreement with Dr Ritchie as to the position Dr Ritchie had taken

in regard to this measure in general practice. He (Prof. Simpson) had been surprised to hear from Dr Carmichael that the nurses had been so officious in this matter. It was quite contrary to the spirit of the teaching that was imparted to them in our Maternity to take it upon themselves to carry out any kind of treatment, except under direct instruction of the doctor in charge of a case. Certainly vaginal, and still more intra-uterine douching, ought never to be undertaken unless it were specially ordered by the responsible physician. As to the conditions requiring the use of the douche, he (Prof. Simpson) thought that any practitioner who had lost a puerperal patient from septic mischief ought to have great misgivings in his mind as to whether all had been done that might have been done to save her, if he had not made free use of the intra-uterine antiseptic douche. But where a man had been careful to cleanse the passages before or during the labour, and where he had been specially careful to conduct the process aseptically, and to disinfect the cavities and canals after any kind of interference, there was little likelihood of any danger supervening; and to have recourse to twice-a-day routine douches in such a case would certainly subject the patient to much inconvenience, and might introduce new elements of danger.

Dr W. Martine, Haddington, referred to what had fallen from previous speakers as to the duration of the puerperium in connexion with the use of routine antiseptic douching. He well recollected a case which occurred in his practice many years ago, where a poor woman was confined in a cart-shed at a farm within two miles of Haddington at five o'clock in the morning, and next afternoon between three and four she was walking through the streets of the town, and certainly in her case no douching of any kind was had recourse to. As to the question of the propriety of antiseptic douches as a routine practice during the puerperium, Dr M. agreed very much with the remarks of Drs Carmichael and Macvie, that in natural and unaided cases, if thorough cleanliness be strictly observed in all the surroundings, frequent douching is unnecessary, and to carry it out in every case in country practice is well-nigh impossible.

Dr Hunter very strongly advocated the routine use of the vaginal douche. He spoke from an experience of twenty-seven years, during which he had attended a large number of deliveries, and had been unfortunate enough to have lost several cases from two separate outbreaks of puerperal septicæmia. In reverting to these fatal cases, the mental distress they at the time occasioned was vividly recalled; and this, as well as other circumstances, induced him to use all the precautions in his power to prevent a recurrence of a similar experience. To antiseptic vaginal douching in such prophylaxis he assigned a foremost place. In discussing this question it must be kept in mind that the city physician

engaged in extensive obstetric practice is placed in a different, and, he believed, more favourable position for successfully conducting his cases than his brother practitioner in the country. The former restricts his surgical practice, and seldom, if ever, is called upon to perform *sectiones* in bodies in varying conditions of decomposition. The latter is hurriedly, and frequently unexpectedly, called from surgical septicæmia, zymotic diseases, such as scarlet fever, and after performing post-mortem examinations in medico-legal cases, to attend confinements miles from his home; and although he uses all the precautions in his power and at his disposal, with the intention of securing manual and personal antisepsis, in a certain proportion of cases there is a very considerable risk of a varying dose of the poison being absorbed and unhappy results following. It is urged that only in the abnormal cases is the douche-can required, and he took it that few would dispute its proper use in these; but at the termination of the labour it is impossible to be certain to what extent there may be cervical tears or limited vaginal lacerations. In all such cases as those referred to, the patient is placed in a much better position by vaginal antisepsis to resist the possible action of morbific germs; and if admittedly necessary for cases going wrong or threatening to go wrong, it is surely a wise precaution to make its use a routine practice. The difficulties in its efficient performance had, in his opinion, been unintentionally exaggerated, and he believed any woman of ordinary intelligence, without being at all a trained nurse, should, after seeing it done and having it explained to her, have no difficulty in satisfactorily carrying it out. The fresh *good* colour with which those who have been regularly douched get up, in contrast with the yellowish, drawn look so often seen in those who have not, was only one of the minor evidences in favour of the course recommended. The results in his own practice have amply justified its employment, for since commencing its regular use he had not lost a case.

Dr Connel thought that theoretically they were all agreed that too great care could not be taken in the matter of surgical cleanliness, though he should be sorry to think that vaginal douching was to be held a necessity in every case during the puerperium. One cause mentioned by Dr Ritchie, but not dwelt upon, was insanitary surroundings as leading to puerperal mortality. He thought they owed more to this cause in country towns than to any other, though he was glad to say that even there, people were now waking up to the necessity of having thoroughly efficient drainage arrangements. He was disposed rather to favour the American plan of setting the patient up after the fourth day, supported in bed, with the feet over it, in order to promote flow of the lochia from the uterus and vagina. He made a plentiful use of sublimated vaseline for hands and instruments, and found

that precaution sufficient. Of course, in case of offensive odour or rise of temperature the douche might be essential.

Dr Spence, Burntisland, while agreeing with all that had been said as regards its routine use in hospitals, would be sorry that it should get abroad that the omission of vaginal douching was a neglect of duty on the part of the doctor. He had had experience of this statement being made by a nurse who casually came in the way of a patient, with resultant blame. It was impracticable as a routine in country practice. He could not agree with Dr Hunter that any ordinarily intelligent woman could be entrusted with the operation. He trusted to strict personal asepsis and careful cleansing of instruments. He noticed that most of the septic cases he had seen were not in his own, but in the practice of more or less qualified midwives, who were apt to neglect precautions of this kind. He could not, as a country practitioner, support its routine use.

Dr Thom, Crieff, thought he might state on behalf of those who were engaged in practice in the provinces the results of his experience. It was that there was no necessity for making vaginal douching a routine practice after delivery. Very many of them could say, like a former speaker, that their record of mortality in puerperal cases was *nil*. In maternity hospitals elements occurred which did not appear in general practice. He was quite of opinion that in simple uncomplicated cases the uterus and the vagina also were perfectly capable, by the power inherent in their tissues, of getting rid of all their own post-partum secretions, which in healthy women were innocuous; and they should regard it as a shame, and highly culpable, to be the means of introducing anything septic. The vagina was not a rigid tube, but possessed the power of mechanico-vital action, and did not depend upon gravitation alone for removal of its contents. He had no hesitation in using the douche, however, when manipulative interference was necessary, whether by instruments or the hand.

The President said that this was one of the most interesting discussions which had taken place since he had joined the Obstetrical Society. He was not aware that they had ever had such a large gathering of the Fellows, and the varied character of the discussion made it of peculiar value. A special feature had been the expression of opinion on the part of the country members, embodying, as it did, the results of extensive practical experience. The discussions in the Society were apt to be too rigidly scientific, and they welcomed all the more one like this of practical utility, and the contributions of those who looked at things from the practical standpoint. The question under discussion was many-sided, and one on which there would be naturally divergence of opinion. Personally he inclined to the opinion expressed by Dr

Croom, who was in favour of systematic vaginal douching. There was one argument for it which had not been brought forward. All inflammatory affections in the puerperium were septic in origin,—for example, a localized cellulitis from a torn cervix. He believed that these were less frequent since vaginal douching was employed, which aimed at treating the torn cervix as we would any raw surface which we washed daily with an antiseptic, because it was not healing by first intention. The general opinion of the Society was, however, decidedly against recommending vaginal douching as a *routine* practice during the puerperium,—that is to say, that we were not to regard it as necessarily a part of antiseptic midwifery. He regretted if it was the case, as Dr Carmichael had mentioned, that the Edinburgh Maternity nurses made no distinction between what was done in hospital and what was necessary in private practice, where their first duty was to carry out the instructions of the physician who was responsible for his patient. In closing the discussion he thanked the country members for the way in which they had availed themselves of the change of hour so as to be present on this occasion, and expressed the hope that this would be only the first of many similar gatherings.

After the discussion the Fellows dined together as guests of the President, and a most enjoyable evening was spent.

XII. REPORT OF THE EDINBURGH ROYAL MATERNITY AND SIMPSON MEMORIAL HOSPITAL FOR THE QUARTER ENDING 31ST JULY 1893.

By REGINALD O. PETRIE, M.A., M.B., C.M., and JAMES L. THOMPSON, M.B., C.M.

INTERN CASES.

DURING the quarter 85 women were delivered in the Hospital, of whom 34 were primiparæ and 51 multiparæ.

Primiparæ, 34—

(*a.*) *Age.*—Youngest, 16 years; oldest, 39 years; average, 24 years 3 months.

(*b.*) *Presentation.*—Vertex, 32; brow, 2; transverse, 1.

(*c.*) *Position.*—Vertex: 24 L.O.A., 7 R.O.A., 1 R.O.P. Transverse: 1 right cephalo-iliac dorso-posterior.

(*d.*) *Duration of Labour.*—First stage: maximum, 57 h. 45 m.; minimum, 4 h. 30 m.; average, 19 h. 11 m. Second stage: maximum, 3 h. 55 m.; minimum, 15 m.; average, 1 h. 19 m. Third

stage: maximum, 40 m.; minimum, 5 m.; average, 21 m. Whole labour: maximum, 59 h. 45 m.; minimum, 5 h. 45 m.; average, 20 h. 51 m.

(*e.*) *Classification of Labours.*—Natural, 14; laborious, 15; præternatural, 1; complex, 2; abortions, 2.

(*f.*) *Infants*, 36. Male, 20; female, 16.

(*g.*) *Weight of Full-term Child.*—Male: maximum, 7 lbs. 11 oz.; minimum, 6 lbs.; average, 7 lbs. Female: maximum, 8 lbs. 2 oz.; minimum, 6 lbs. 6 oz.; average, 7 lbs. 3 oz.

(*h.*) *Length of Full-term Child.*—Male: maximum, 22½ in.; minimum, 18 in.; average, 20·4 in. Female: maximum, 22 in.; minimum, 17½ in.; average, 20·7 in.

(*i.*) *Weight of Placenta.*—Male: maximum, 1 lb. 12 oz.; minimum, 1 lb.; average, 1 lb. 5 oz. Female: maximum, 2 lbs.; minimum, 1 lb. 4 oz.; average, 1 lb. 9 oz.

(*k.*) *Length of Cord.*—Male: maximum, 32½ in.; minimum, 19 in.; average, 24·9 inches. Female: maximum, 33 in.; minimum, 18 in.; average, 26 in.

Multiparæ, 51—

These comprised 29 ii.-paræ, 7 iii.-paræ, 1 iv.-para, 4 v.-paræ, 2 vi.-paræ, 2 vii.-paræ, 2 viii.-paræ, 3 ix.-paræ, 1 xiii.-para.

(*a.*) *Age.*—Youngest, 18 years; oldest, 42 years; average, 27 years 8 months.

(*b.*) *Presentation.*—Vertex, 45; breech, 3; transverse, 1.

(*c.*) *Position.*—38 L.O.A., 2 R.O.P., 4 R.O.A., 1 L.O.P., 3 sacro-læva anterior, 1 left cephalo-iliac dorso-posterior.

(*d.*) *Duration of Labour.*—First stage: maximum, 41 h.; minimum, 1 h. 55 m.; average, 9 h. 20 m. Second stage: maximum, 2 h. 25 m.; minimum, 5 m.; average, 36 m. Third stage: maximum, 70 m.; minimum, 3 m.; average, 20 m. Whole labour: maximum, 41 h. 30 m.; minimum, 2 h. 20 m.; average, 10 h. 16 m.

(*e.*) *Classification of Labours.*—Natural, 33; laborious, 9; præternatural, 2; complex, 3; abortions, 4.

(*f.*) *Infants*, 47. Male, 15; female, 32.

(*g.*) *Weight of Full-term Child.*—Male: maximum, 9 lbs. 15 oz.; minimum, 5 lbs. 11 oz.; average, 7 lbs. 8 oz. Female: maximum, 9 lbs. 11 oz.; minimum, 5 lbs. 3 oz.; average, 7 lbs. 1 oz.

(*h.*) *Length of Full-term Child.*—Male: maximum, 22 in.; minimum, 19 in.; average, 20·3 in. Female: maximum, 22 in.; minimum, 19 in.; average, 20·5 in.

(*i.*) *Weight of Placenta.*—Male: maximum, 2 lbs. 8 oz.; minimum, 1 lb. 2 oz.; average, 1 lb. 9 oz. Female: maximum, 1 lb. 13 oz.; minimum, 1 lb.; average, 1 lb. 6 oz.

(*k.*) *Length of Cord.*—Male: maximum, 34 in.; minimum, 17 in.; average, 25·7 in. Female: maximum, 37 in.; minimum, 13½ in.; average, 23·8 in.

Labours:—

Laborious, 24. (*a.*) Lingering, 10; in five of which there was premature rupture of the membranes, and one was a case of premature labour where the uterine contractions had been going on irregularly for some time previous to admission to hospital. (*b.*) Instrumental, 14 (forceps, 13 cases; craniotomy, 1 case). Forceps were applied in three cases of primiparæ over 35 years of age in whom birth at the outlet was delayed; in two cases of justo-minor pelves; and in one case of masculine pelvis. Forceps were applied, once for backward rotation of the occiput in an occipito-posterior case, once when labour was delayed owing to large size of child, once at the brim where the second child in a case of twins presented by the brow, and four times in delay at the outlet with threatened inertia uteri.

Præternatural, 3. Two were breech presentations, the position in both being sacro-læva anterior, and one was a brow presentation which terminated without interference.

Complex, 5. Two cases of twins; two cases of retained membranes,—in one of these labour was premature and there was some difficulty in getting the placenta and membranes away; in the other case labour was precipitate, and on examining the placenta, which was expelled almost immediately after the child, it was found that the membranes had been torn and a portion had been retained in the uterus. One case of secondary post-partum hæmorrhage; the bleeding commenced about four hours after the completion of labour, and was readily controlled by uterine compression and the use of the hot douche.

Abortions, 6. Two at the second month; one at four and a half months; one at the third month; one at the fourth month; and one at the fifth month.

Two cases are of special interest:—

Craniotomy for Contracted Pelvis.

B. M., æt. 29, primipara, pale and weakly-looking. Pelvis: intercristal diameter, 10½ in.; interspinous, 9¼ in.; external conjugate, 7 in. Patient was admitted on May 3rd. On abdominal examination a living child was made out, head presenting in the L.O.A. position. On vaginal examination the os was found to be the size of sixpence. There were weak and infrequent uterine contractions. The pains, however, passed off, and the patient went out on May 6th. She returned again on May 8th at 4.30 P.M., uterine contractions having been re-established. The membranes ruptured with the onset of these pains. On abdominal examination the fœtal heart could not now be heard. On vaginal examination the os was the size of a shilling, and through it the bones of the fœtal skull felt soft and yielding. A light yellowish discharge came away on the examining fingers. The child was diag-

nosed to be dead. The patient received half a grain of opium at 5.10 P.M., 5.45 P.M., and 6.20 P.M. At 10 A.M. the following morning the os was the size of a crown piece. Patient was then chloroformed and digital dilatation tried, but to no purpose. Dr Underhill was called, and he ordered a tight abdominal binder and warm vaginal douches, which she received at 2 P.M., 4 P.M., and 6 P.M. At 8 P.M., on vaginal examination the os was still not fully dilated, and the head making no advancement. The bones of the skull were very soft and yielding. The patient was becoming very exhausted. Dr Underhill was sent for at 8.30 P.M. Seeing that the child was dead he resolved to perform craniotomy. First of all the skull was perforated, and then the cranioclast used for extraction. The head was delivered after some difficulty. A strong piece of tape was then tied round the child's neck and a blunt hook passed and fixed under one of the shoulders. By steady traction the child (a female) was delivered at 9.45 P.M. The patient had an uninterrupted recovery.

Twins: Albuminuria.

J. C., æt. 18, primipara. Admitted in labour on June 23rd, and confined the following morning. Short, slightly built, face pale, puffy, and pasty. Great œdema of the lower limbs, the skin being tense and shining. Abdominal tumour prominent, abdominal walls markedly œdematous, and skin much fissured; arms and hands swollen, and pitted on pressure. Examination by palpation and auscultation gave nothing satisfactory as to contents of the uterus, owing to the great thickness of the abdominal walls. Per vaginam it was found that the cavity of the pelvis was roomy, cervix taken up and dilatation of the os in progress, membranes bulged during pain, head felt presenting. Some urine was obtained, and was found to contain seven grains of albumen per ounce. There was no blood nor casts. Labour went on satisfactorily. The first stage lasted eight hours, and sixty-five minutes after full dilatation of the os the first child was born. On making a vaginal examination a second head was felt presenting by the brow, with the cord prolapsed. The cord was replaced, but could not be retained in position, so forceps were applied and delivery hurried. The child, which was small and puny, was still-born, and all efforts at resuscitation failed. The third stage lasted five minutes. There was no subsequent hæmorrhage, the uterus contracting firmly. Patient had a good puerperium. She was placed on a milk diet, and given a mixture containing digitalis and acetate of potash, and her bowels kept freely moved with Henry's solution. On the third day after delivery the albumen in her urine had fallen to one grain per ounce, and at the end of a week had entirely disappeared. The œdema rapidly subsided, and ten days after delivery the patient's tissues had apparently regained their normal condition.

Intern Cases.—Mortality: Maternal, 0; infantile, 3; fœtal, 11.

Infantile.—Two were twins born prematurely, and which died soon after delivery. The other death occurred nine hours after birth, and on examination the skull bones were found to be very imperfectly ossified.

Fœtal.—Six were in the cases of abortion. Two were premature at the seven and a half month. One was a case of craniotomy. One, though well developed, was still-born after a prolonged first stage, and one was the second child in a case of twins.

Extern Cases.

During the quarter 118 women were attended at their own homes. Of these 16 were primiparæ and 102 multiparæ.

The multiparæ comprised—15 ii.-paræ, 15 iii.-paræ, 18 iv.-paræ, 9 v.-paræ, 13 vi.-paræ, 6 vii.-paræ, 13 viii.-paræ, 2 ix.-paræ, 4 x.-paræ, 5 xi.-paræ, 1 xii.-para, 1 xiii.-para.

Classification of Labours.—Natural, 97; laborious, 8 (lingering, 1; instrumental, 7); præternatural, 3; complex, 8; abortions, 2.

Presentations.—Cephalic-vertex, 113; pelvic-breech, 6.

Positions.—L.O.A., 105; R.O.A., 6; R.O.P., 1; L.O.P., 1; sacro-læva anterior, 6.

Labours:—

Laborious, 8. Of these seven were instrumental (forceps) and one lingering. The indications for the use of the forceps were in five cases inertia uteri, in one case justo-minor pelvis, and in one case large size of child.

Præternatural, 3. These were all breech presentations. In one case the child was resuscitated with difficulty, and died on the evening after delivery.

Complex, 8. One case of lateral placenta prævia. Three cases of twins, in each of which there was a head and breech presentation. Two cases of accidental hæmorrhage, and two cases of retained membranes; in both a portion of the membranes had been torn off during expulsion.

Abortions, 2. In both cases abortion took place about the third month. In one case the placenta and membranes had to be scraped from the uterine wall with the fingers.

Sex.—Males, 54; females, 64.

Mortality.—Maternal, none; infantile, 2. One died on the evening of delivery; it had been resuscitated with difficulty. The other died on the third day from bronchitis.

Fœtal, 9. One was putrid; eight still-born. Of these latter four were in breech presentations, one premature at the sixth month, one lateral placenta prævia at the eighth month, and in two the cause was unknown.

The only case of interest was one of

Lateral Placenta Prævia.

Mrs G., æt. 43, xii.-para. The patient first menstruated between 13 and 14 years of age. She had her first child at 22 and then had children at intervals of eighteen months. The youngest living child was five years old. Two years after the birth of her last child she had a miscarriage and was about two months gone. She cannot remember if she menstruated after the abortion, but she aborted again in two months' time. She was always a healthy woman till the birth of the last child. Since then she has been weak, and complained of pain in the back. She she never had any intermenstrual pain. She had a downbearing feeling and felt unfit for work. She thought she felt stirrage in November. On April 29th some waters came away, but no pain present. Early on the following morning blood appeared, and after that the flow was steady and profuse. She sent to the Maternity Hospital on the following day, and was seen by a student, who sent for the house-surgeons. No fœtal movements were felt; no heart sounds audible. She seemed about eight months pregnant. On vaginal examination the os was high up and difficult to reach, and admitted the tip of the finger. The placenta was found laterally placed. Blood was coming away somewhat profusely, but no pains present. The patient looked anæmic and collapsed. After a vaginal douche had been given the vagina was tightly plugged with pledgets of cotton wool. Ether was administered, and the patient rallied considerably. Dr Milne Murray was called five hours later. The vaginal plug was removed, and it was found that the hæmorrhage had been very slight. The os had now dilated to the size of a crown piece. Dr Murray turned, and brought down a foot. The child was born shortly afterwards, but was dead. The placenta and membranes were removed by expression, and the uterus contracted firmly. There was no post-partum hæmorrhage. The patient's temperature was above 100° Fahr. for the first two days of the puerperium, but on the third it fell to normal, and she made a perfect recovery.

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LAWS

OF THE

EDINBURGH OBSTETRICAL SOCIETY.

INSTITUTED IN 1840.

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1894.

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LAWS

OF THE

EDINBURGH OBSTETRICAL SOCIETY.

INSTITUTED IN 1840.

I. The object of the Edinburgh Obstetrical Society is to advance the knowledge of Obstetrics, Gynecology, and the Diseases of Children, by holding Meetings for the purpose of receiving Communications on, and for the discussion of subjects connected with these branches of Medical Science. It is expected, therefore, that the Fellows will communicate any interesting cases, and exhibit to the Society any important morbid specimens in these departments which may come under their notice. The proceedings of the Society shall be strictly confidential.

II. The Society shall be composed of Honorary, Corresponding, and Ordinary Fellows, who must be duly registered Practitioners. Ordinary Fellows not resident in Edinburgh may be enrolled among the Corresponding Fellows.

III. The Society shall be managed by a Council, consisting of the President, two Vice-Presidents, Treasurer, Librarian, two Secretaries, an Editor of Transactions, and eight Ordinary Fellows.

IV. The Society shall meet monthly or bi-monthly during the Session, the time of meeting being Eight P.M.; but Extraordinary Meetings may be called by the Council.

V. Practitioners and Students of Medicine may be admitted, on the introduction of a Fellow, during Public Business, to any Meeting of the Society.

VI. The Election of Office-Bearers shall take place at the first Meeting of each Session. Their term of office shall be for two years; and, with the exception of the Treasurer, Librarian, Secretaries, and Editor of Transactions, they shall not be eligible for re-election for two years for the particular office they have held. The Senior Vice-President and the four Councillors highest on the list shall retire annually. The elections shall be conducted by voting papers. Previous to the election the Council shall draw up a list of the Fellows whom they suggest to the Society for election as Office-Bearers. This list shall be printed on a separate paper and issued with the billet of the Election Meeting. Fellows are not necessarily expected to adhere to the names on the paper, but may substitute and propose any others they think fit.

VII. The Council shall regulate the business of the Society, and shall prepare, with the consent of the authors, such abstracts of the proceedings of the Society as it may be desirable to publish. It shall also draw up a series of questions, one of which shall be announced for discussion in the billets of any evening when there is a deficiency of Communications.

VIII. Each Communication read to the Society, or a summary of it, at the discretion of the author, shall be furnished to the Society at the time of reading, for publication along with the discussion.

IX. When any Communication has been twice entered in the billet without having been read, or a sufficient apology

sent in, the Secretary shall refuse admission of the same to the billet for at least two months.

X. The President shall keep order in the Meetings, and shall have a deliberative as well as a casting vote. He shall always be addressed at the Meetings by the speaker.

XI. The Secretaries shall keep a regular record of what takes place at the Meetings, and shall draw up a minute of the proceedings, which shall be submitted for approval at a subsequent Meeting.

XII. The Treasurer shall be accountable for all the moneys of the Society, and shall submit a statement of his accounts at the first Meeting of each Session.

XIII. The names of all applicants for the Fellowship, along with those of their proposers and seconders, must be entered on the billet calling the Meeting at which they are to be balloted for. A majority of two-thirds of the Fellows present shall be required for the admission of Candidates.

XIV. When any gentleman is proposed for the Fellowship, the proposer or seconder shall state in writing the professional qualifications possessed by the Candidate.

XV. The Honorary Fellows shall be limited to forty, of whom not more than twelve shall be British. The Council shall submit annually in July a list of names necessary to complete the number of Honorary Fellows.

XVI. No one shall be elected a Corresponding Fellow until he shall have communicated a paper to the Society.

XVII. No one shall be admitted to the privileges of an Ordinary Fellow until he has paid the Entrance Fee and first Annual Contribution.

XVIII. If any Ordinary Fellow delay to pay the Entrance Fee beyond three months, he shall forfeit his Fellowship, unless he shall assign a sufficient reason for his neglect. Fellows who are three years in arrear are liable to have their names deleted from the roll of the Society.

XIX. For Ordinary Fellows the Entrance Fee shall be One Guinea, with a Contribution of Five Shillings, payable on admission, and thereafter annually at the first Meeting in November. Fellows are allowed to compound for their Annual Contributions by a single payment of Five Guineas.

XX. Any Corresponding Fellow, at his own request, may be admitted to all the privileges of an Ordinary Fellow, on paying the usual Entrance Fee and Annual Contribution.

XXI. If any Ordinary Fellow, after having been duly admitted and having paid his Entrance Money, wishes to resign his Fellowship, he must duly intimate the same to the Secretary; and the Society will consider no resignation as having taken place until it has been so notified; nor will they accept any resignation, nor transfer any Ordinary Fellow to the list of Corresponding Fellows, until the Fellow has discharged all his obligations to the Society.

XXII. All Motions shall be decided by a simple majority of votes, except proposals for altering the Laws, which shall require a concurrence of two-thirds of the Meeting.

XXIII. All Motions shall be made in writing at one Meeting, printed in the billets, and considered at the following Meeting, except in cases which do not admit of delay. Any such urgent Motions cannot be passed except by two-thirds of the Meeting voting in their favour.

BYE-LAWS.

I. The names of all gentlemen admitted as Fellows of the Edinburgh Obstetrical Society shall be published along with the Proceedings.

II. The Council shall revise the Transactions and have the power of determining what shall appear in them.

III. Honorary Fellows, and Ordinary Fellows not in arrear with their Annual Contribution, shall receive the volume of the Transactions when it is published after the close of the Session.

IV. A Special Committee for the Examination of Specimens may be appointed at any meeting of the Society, said Committee to consist of the owner of the Specimen and two other Fellows appointed by the Society.

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